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ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

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LECTURE II.

INFANTILE HEMIPLEGIA (*Concluded*).

SYMPTOMS.—Complex and varied as are the symptoms of infantile hemiplegia, they fall naturally into three divisions: those of the onset, those pertaining to the paralysis, and the sequences; and in this order we shall consider them. The period of *onset* is usually characterized by convulsions and coma, indicating serious disturbance of the brain functions; but there are exceptions to the rule. Thus, in three cases the disease came on *suddenly*, in apparently healthy children, without spasms or loss of consciousness.

Case IX.—Nellie M., æt. twelve years. H., 280. Came on when one year of age, suddenly, with pains; no spasms; whole left side affected; gait hemiplegic; arm and leg swollen and shorter than fellows. Right calf eleven and a half inches, left eleven; biceps, right eight, left seven and three-quarters; dynamometer, right sixty-five, left thirty-five; left side is cold.

Case XXXVIII.—William M., æt. four years and six months. I. P.$_4$, 84. Good family history; was well until three years ago. While playing he became suddenly powerless on right side; had no convulsions, but was comatose for a time; no fever. The face was included and the loss of power was complete. Is a delicate child. Some mental deterioration. Had convulsions ten days before application and now cannot walk.

In Case LXXVII., the hemiplegia came on while the child was dressing one Sunday morning, after an indisposition of a few days' duration.

A *latent*, gradual onset is more common and was noted in ten cases.

Case III.—Joseph D., æt. two and a quarter years. H., 219. When six months old the mother noticed loss of power on the right side. This condition persists; the hand is closed, and there is talipes varus of the foot.

Case VII.—Daniel McS., æt. four years. H., 253. Natural labor. When one year old it was noticed that he could not sit up and seemed weaker than natural. Has begun to walk within the past few weeks. Has right hemiplegia with contraction of flexors; walks very badly; does not talk, but understands what is said to him.

Case LXXV.—Alphonse N., æt. fourteen years. H., 299. Is one of eight children, five of whom died in infancy. Walked at two years and then walking gradually became impaired. There was no sudden attack. *Status præsens:* Right arm and leg wasted; the right shoulder-joint and blade project, and the whole side looks smaller. The hand is cold and there is marked mottling of skin of legs and arms; choreic movements of right arm, and at times an irregular, jerky motion of the right leg; reflexes present; superficial exaggerated on affected side; heart normal.

Case LIII.—Frank H., æt. fourteen months. I.P.$_4$, 169. Healthy and strong when born. When five months old, while teething, went into a fit, at first very severe, almost every hour for a week, then once or twice a week. Has them now on Mondays, in the afternoon. Noticed feebleness of left side of body; does not know exactly when first observed. There is loss of power on the left side; with contracture of the left arm and hand, with shortening and contractures in left leg. Cannot walk or even stand alone. Improved, particularly the arm, under treatment.

Case LII.—Henry I., æt. five years. I.P. b., 37. Parents healthy; healthy at birth; never has used left hand. At eight months observed that thumb was drawn across the hand, fist closed; this became worse. Began to walk at two years, then noticed that left leg was weak. Had a fit at eight or ten months, another a year later, none since. Mind not good. Grip good; contraction in biceps, supinator longus and muscles of hand; hand flexed at right angle, can be easily made straight. Arm much smaller than right.

Convulsions. In the majority of the cases the disease began with convulsions, partial or general. In fifty-two of the ninety-seven cases on our records, this history was given, which corresponds very closely with the figures of Wallenberg: forty-three of eighty-eight cases in which the history was definite; thirty of the eighty cases collected by Gaudard, and in "more than half" of the eighty cases of Gowers.[1]

The following set of cases will illustrate the prominence which this symptom deserves in the clinical history of infantile hemiplegia.

Case X.—Reta O'N., æt. two years and four months. H., 285. When fifteen months old, in April, during teething, had a convulsion; perfectly well before the attack, which came on suddenly and was confined to the left side and lasted eight hours. In July she had a second attack, the convulsions lasting twenty hours. After the April attack there was complete paralysis of left arm, leg and part of face; no strabismus. The second attack did not increase the paralysis. She had begun to recover power before the July convulsions. Reflexes increased on affected side.

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[1] Gowers: A Manual of the Diseases of the Nervous System London, 1888. Vol. ii.

Case XX.—Francis H., æt. five years. I.P.$_1$, 81. Two older children. Healthy child until eighth month, when teething. It then had convulsions, four in number, very violent, which were followed by left hemiplegia. The fits have continued ever since at intervals of a few weeks. Has never walked; intellect feeble; left arm and hand contracted and stiff, but the stiffness can be overcome; the forearm is shorter; stands on the inside of right foot.

Case XIV.—Ella H., æt. four years. H., 309. Was well until her second summer. One night had a convulsion, and in the morning was found to be paralyzed on the left side. Gradually recovered, and can now walk well, though stiffly, and the leg assumes various positions while at rest; attempted movements of the arm will bring on associated movements of the leg and foot. In walking the arm is carried stiffly, extended and pointed backward. Voluntary movements of the hand are slow and performed with difficulty; the fingers do not grasp well; reflexes are a little increased on left side.

Case XV.—Nellie P., æt. five years. H., 316. One of three children; eldest child had spasms; parents healthy; was natural when born. Convulsions when one year old, while teething; they were confined to the right side and lasted from 8 A.M. to 5 P.M. After this the side was paralyzed. Has had no spasms since. Uses arm awkwardly with some incoördination. The right hand and arm are smaller than left; walks with an apparatus.

Case XXVII.—Lewis P., æt. sixteen years. I.P.$_1$, 209. Born healthy. At the age of three months was seized with spasms. There is a doubt whether or not they were confined to the right side. This was followed by partial loss of power on right side. Has never used arm and leg well since, and they are now shorter and in a state of rigidity. The leg is dragged and the gait is hemiplegic; arm and hand very rigid; intellect somewhat impaired.

Case XXIX.—Elizabeth W., æt. seventeen years. I. P.b., 142. Family healthy; child was healthy when born, and well up to twelfth month. Had a slight fit and lay insensible all night. Was thought to have water on the brain and was leeched. Was ill four weeks. Paralysis then came on, involving left side except the face. Leg rapidly recovered power and she walked in a month. The left arm and leg shorter than the right, and the muscles are stiff. Has power of movement in the arm, and the fingers are flexed, and she does not use them. The left arm is two and one-quarter inches shorter than the right, and the left leg one and one-quarter inches shorter than the right. No difficulty in speech. Intellect impaired.

Case XXXIV.—Joseph McC., æt. two years. I. P.$_4$, 28. Mother very nervous. Attack came on November 7, 1882, when the child was about a year old. He had vomiting and purging, convulsions and coma, after which the paralysis affected the left side; came on suddenly. Face not involved. The paralysis has not improved much. Reflexes increased on left side.

Case XXXVI.—Agnes H., æt. six years. I. P.$_4$, 55. Healthy as a baby; dentition slow. When sixteen months old had convulsions, fever, and sudden paralysis of right side of the body, involving the face. Gradual return of power in face; gait hemiplegic.

Case XLIV.—Joseph H., æt. eighteen months. I. P. 3, 189. Natural labor. Child healthy when born. In October was taken suddenly with high fever; no convulsions. The fever subsided in a week. He continued very irritable and nervous for a month. Week before Christmas had convulsions, lasting for fourteen hours, and he was paralyzed in the left arm and leg. The following day unilateral spasm began and continued until evening. He has never had any more spasms. The palsy continues, with, of late, improvement in the leg. *Present state:* Weakness and partial palsy of whole of left side with considerable rigidity of flexors of fingers: no deviation of face now, though there was some at first. Died of the unilateral convulsions just eleven months after onset of the disease.

Case XLVI.—Mary M., æt. nineteen months. I. P. 3, 165. One other child has had spasms. In July had "spasms." Woke from sleep in them; the left side was convulsed and, after spasm, found to be palsied. Two days later had eighteen attacks; after this left arm and leg seemed a little better. Face was drawn to left side. After a few days ceased having these violent spasms. Began to walk in two months. Since then she has had momentary attacks of unconsciousness, occurring at first daily, now every two or three days. *Present state:* Healthy looking; no atrophy of muscles; no contractions. Left arm and leg weaker than right. Falls easily. Face not drawn.

Case XLIX.—Mary M., æt. fourteen months. I. P. 3, 337. Youngest of three children. Well until July 6th, when she had spasms all afternoon and evening. No fever or diarrhœa. Said to have had congestion of lungs. Face, arm and leg on right side palsied. Began to move right leg at end of week. Arm still palsied.

Case L.—Jennie A., æt. fourteen years and ten months. H. 1, 348. Was healthy when born. Labor natural. Enjoyed good health until about a year old, when she had convulsions, suddenly followed by coma, which lasted several days, and, on recovery, she was noticed to have lost power on the left side of face, arm and leg. For several months the palsy persisted, but she gradually regained the use of leg and then of the arm, but the face has never changed; for this she now comes to the hospital. *Status præsens:* A fairly well grown girl, rather nervous and timid, and the father says she worries herself and has fits of despondency. There is complete paralysis of the lower facial muscles on left side; mouth is drawn to the right. Can shut the eye, wrinkle, and elevate the brows, but there is no movement of the lips on left side, nor does the ala expand. Face on this side a little smaller. No loss of sensation. Arm is used quite well; no weakness of hand. Dynamometer: R. 75; L. 65. Can run well; no difference in the legs. Reflexes normal. On watching the face it is noticed that, from time to time, there are choreiform twitchings in the muscles of the face on the left side; most marked when the muscles of the normal side are in action. Quantitative, but no serial changes in electrical reaction of the paralyzed muscles.

Case LIV.—Thomas McR., æt. ten years. Well until eight months old, when he had spasm of the left hand, and the whole left side seemed weak. No statement as to general convulsion. When two years old had seven convulsions, and has had eight since then. Fever often precedes the attacks. There is contracture of the left arm, and the hand is weak, though the fingers can be moved. There are, at times, slight spasmodic movements in pronation. Left leg drawn up by contraction of gastrocnemius.

Case LV.—Joseph D., æt. eleven years. I. P.a., 107. Healthy when born. When three months old had convulsions, after which it was noticed that he did not use the right hand. Had twitchings and spasms as an infant, and, at three years, a severe convulsion lasting from 10 A. M. to 10 P. M. Has not had violent spasms since. Walked when two years old. *Status præsens:* Walks badly on account of contraction of right gastrocnemius. Movements of right arm limited. Cannot extend the wrist; fingers flexed. Grip fairly good.

Case LVII.—Harry S., æt. three years. I. P.a., 159. Well until the tenth month, when, during an attack of catarrh, he had a severe convulsion lasting seven hours, chiefly on right side, and for three days lay in a stupid, semi-comatose condition. Could not use the right arm after it, and the right leg was weakened. The mouth was drawn to the left side, but became straight again. When a year old had a second convulsion while teething. Gait hemiplegic; cannot lift the toes; right leg well nourished. Contraction and spastic condition of the right arm.

Case LIX.—Mary H., æt. six years. C. D. C., 80. Parents healthy; one brother had convulsions while cutting teeth. Healthy until third year. Fit came on while in perfect health. Fit began on left side, then became general; lasted nine hours. Insensible for some hours. Could not see for two days. Left side completely paralyzed. Could not move left side for three months; improvement beginning in hand. At end of year could walk. In September had fits again, but was not more paralyzed. Fits again in March. Three attacks of fits since. Last attack, one year ago, completely palsied the left side again. Ever since first attack mind affected; bad temper; bites. No atrophy of left arm, no contracture; left arm seems weak; walks and runs. Has fits now.

Case XXX.—Christian A., æt. eight years. I. P.a., 19. Healthy when born. When six months old had very violent fits. When three years of age had one day convulsions from 4 A.M. to 7 P.M. Had summer complaint badly during the first eighteen months of life. After the first fit lost power on the right side of the body and in the limbs. Chorea gradually developed. *Status præsens:* Is well grown and intelligent; goes to school. The right arm and hand are weak, and he can flex and extend the fingers, but when he attempts to perform any volitional act, irregular movements come on and prevent their successful performance. The grasp of the right hand is decidedly weaker than that of the left. When at rest the right hand is closed and the thumb flexed across the palm. The right leg is colder than the left and the heel is drawn up by contraction of the gastrocnemius. The foot is inverted, pes equinovarus. There are no choreic movements in the leg. The tendo Achillis was cut and an apparatus applied which relieved him very much and enabled him to walk much better.

Case LXIX.—Henry L., æt. fourteen years. When eighteen months old had general convulsions which lasted ten days, and left the right side paralyzed. Gradually recovered the use of the leg, but the right arm is atrophied and weak, and displays constant choreic movements. No contractions. Walks quite well; general health good.

Case LXXXVIII.—Amanda C., æt. thirteen months. I. P. 3, 375. Born without instruments. In October, when seven months old, had spasms and was unconscious from Saturday to Wednesday. Spasms began in left arm and right leg. On Wednesday the arm and leg were noticed to be palsied. *Status præsens:* Is unable to sit alone; falls toward the left side. Rigidity and contractures of left arm and leg, with marked choreic movements. Muscles not wasted. The thumb is turned into hand.

Loss of consciousness almost invariably accompanies the convulsions, and may last from a few hours to many days. In a few instances coma occurred without convulsions.

Case V.—Lizzie E., æt. twenty-one months. H., 237. One of two children. Was healthy when born and until sixteen weeks ago, when, in the evening at 10 o'clock, had a most intense headache. She had seemed to have frontal headache for about two months. She became unconscious and did not revive until 11 o'clock. She attempted to rise but fell to one side. She was able to walk upstairs and nothing wrong was noticed in the limbs. The next morning the child could not move the right arm or leg, and had lost completely the power of speech. Three days after could move the leg, and walked again in three weeks; regained speech on third day. Has for the past seven weeks begun to use the arm. Patellar reflex is increased on the affected side.

Case XLVIII.—Bertram T. B., æt. five years, I P. 3, 279. Family history good. Elder of two children. Two years ago, in July, had an attack of left hemiplegia. Unconscious for six weeks; no convulsions. At end of six weeks began to move right arm and leg. Two months later began to move left leg. Has not improved much since. Considerable wasting on left side, and the foot is somewhat smaller than right foot.

Fever. The records are not complete on this point, and it is not often mentioned whether or not the temperature was elevated. Fever may be transient or persist for weeks as the following cases illustrate:

Case XLV.—Lewis S., æt. two years. I. P. 3, 11. Youngest of six children; others healthy. Parents healthy. Well until September. While playing on floor, fell over, and on examination it was found that he did not use left arm and leg well. Paralysis of leg soon became complete and of arm incomplete. Began to use arm in one week, and, in a month, could sit alone and draw up leg. On day of attack had fever, was restless, did not vomit. No retraction of head and no bladder trouble. Fever disappeared in a day or two; soreness to touch remained for two weeks. *Status præsens:* Has improved very little in leg. Is a well-nourished looking child; left leg atrophied. No difference in length of legs, but left foot one-quarter inch shorter. Can flex and extend leg and thigh; extends foot, but cannot flex it. Flexes and extends toes. Talipes equinus; sensation normal.

Case XLI.—Jennie E., æt. four years. I. P. 3, 195. In April, had fever and delirium lasting almost four weeks. At about end of fourth week the mother noticed that right arm and leg were paralyzed. Speech was also a little affected. *Status præsens:* Right leg a little shorter, about one-quarter of an inch; and foot also. Slight atrophy of leg. Has all movements of leg and arm. Arm slightly atrophied; no change of temperature. In walking she limps, and there is slight "genu recurvatum." There are slight

involuntary movements of affected limbs, noticed when excited. September 24, 1879, movements have ceased; walks better, some rigidity of right arm.

Strümpell, Gaudard, and others mention fever as an invariable accompaniment of the convulsions which usher in the disease in such a large proportion of the cases.

Delirium, which is noted by some writers as preceding or replacing the convulsions, was observed in Cases XLI. and LXXXIV.

Vomiting is especially mentioned in only four cases.

Soreness of the general surface was observed in Cases XLV. and LXIV.

Screaming spells preceded the attack in one case.

Doubtless many children die in the convulsions or in the subsequent coma, without reaching the second or paralytic stage of the disease.

The hemiplegia, which is noticed as soon as the child recovers consciousness, is usually complete. Less frequently there is, at first, paresis which gradually results in complete loss of power, and in some instances the total paralysis was only established after repeated convulsions, as in Cases LIX. and LXXXV. In sixty-eight cases the right side was involved, in fifty-two cases the left.

The *face* is not always affected; the exact proportion is uncertain as the point was not constantly mentioned. As is the rule in facial paralysis of cerebral origin, the superior muscles are not involved, and the child can close the eyes and elevate the brows. Rapid and complete disappearance of the facial palsy is the rule, and, of the cases which returned for examination, in only one did the condition persist, and in this, strange to say, no trace remained of the paralysis of arm and leg. The child, aged fourteen and one-half years at time of observation, had been completely hemiplegic at the age of one year; the arm and legs had gradually improved, but the face was drawn to the right and there were choreiform movements in the paralyzed muscles of the left side. The tongue did not seem to be affected, but the uvula deviated strongly to the right. Dr. Sinkler has at present in the wards a girl aged thirteen, who became hemiplegic in infancy, and has still complete facial palsy; and in Case XCVI., the last of the forceps cases, there were paresis and atrophy of the facial muscles.

As with the hemiplegia of adults, the residual paralysis is most marked in the arm, which displays more or less wasting, and is, as a rule, useless for the ordinary purposes of life. There may be arrest of development, leaving a wasted and withered member; more commonly, there is only a moderate degree of atrophy. In extreme cases the arm is held close to the side, the forearm strongly flexed at right angles and in the semi-prone position; the hand flexed and the fingers contracted in the palm, usually embracing the thumb. Motion may be almost lost in the arm and completely lost in the fingers. In a majority of the cases there is considerable power of movement, and the arm can be lifted above the head and flexion and extension made at elbow and wrist. The finer and more delicate movements of the hand are rarely recovered, and, while many of the cases possess a useful limb for carrying or grasping purposes, actions requiring manipulation with the fingers cannot be effected. The grasping power is often remarkably good. The leg, as a rule, recovers more rapidly and more completely than the arm, and the palsy may completely disappear, an event which very rarely happens in the upper extremity. The wasting is never so marked, nor does arrest of development often occur. In only one case, VI. of the Elwyn series, is the leg much atrophied. But even when of fair size, and of good muscular development, there is evidence of impaired power in the persistent halt which is such a characteristic legacy of hemiplegia. The patient may simply "favor" the affected side, noticeable, perhaps, only on rapid walking. A very perceptible dragging of the limb is more common. There may be tremor of the leg while in motion.

Rigidity was present in a large proportion of the cases at the time they came under observation. So marked is this feature of spasm that the disease has been termed spastic infantile hemiplegia. Although a very frequent, it is not a constant symptom, and there are cases in which the paralyzed limbs are quite relaxed, even years after the onset of the affection. In Cases IV., V. and VII. of the Elwyn series the arm is flaccid; and in Case X. the spasm is very slight. The rigidity disappears during sleep; it is increased by emotion and aggravated by any attempt forcibly to overcome the spasm. When the rigidity is extreme and has lasted for years, permanent contracture may result, in which condition relaxation is no longer possible, on account of the structural changes which take place in the muscle.

The *reflexes* are almost invariably increased in the affected limbs. The knee-jerk is exaggerated, and, in many cases, the ankle clonus can be obtained. As often happens in hemiplegia, the reflexes may be heightened on the sound side. A rectus clonus can sometimes be got, and, in several of the cases, making sudden tension of the spastic fingers developed a clonus on the flexors. In three cases the reflexes were absent—Cases I. and VIII. of the Elwyn series, and IX. of the Infirmary patients. In the Elwyn cases there is rigidity, which in the other is very slight. They are not necessarily absent in the instances of flaccid paralysis.

Sensation is not often disturbed; it has been normal in all the cases which I have examined, and it is not once mentioned in the records as absent.

Vaso-motor disturbances, such as coldness of the affected extremities, blueness and congestion, are not uncommon, particularly when the paralysis is extreme.

The *electrical reactions* are usually normal; occasionally quantitative, but never qualitative changes are noted. None of the recent cases examined in the electrical department, by Dr. Willets, have shown alteration of other than a slight diminution.

Post-hemiplegic movements. It was from this hospital, and based chiefly upon a study of cases of infantile hemiplegia, that Dr. Weir Mitchell first described those disorders of movement which are known as post-hemiplegic chorea, mobile spasm, athetosis, hemi-ataxia and post-hemiplegic tremor. There were thirty-one cases in the entire series which presented these movements. Three varieties were noted:

1. *Post-hemiplegic tremor*, which was present in only one case (LXXXV.), and occurred in the entire arm, chiefly when at rest.

2. *Post-hemiplegic chorea*, or, more correctly, hemiataxia. The great majority of the cases, twenty-four in number, come in this division. The movements were in-

coördinate and choreiform, chiefly noted on voluntary effort. Many instances of this have been described in the report of the cases.

3. *Mobile spasm and athetosis*, noted in six cases.

The following are good illustrative cases:

Case XCI.—Mary H., æt. eleven years. I. P. I., 161. When two years old, had "a spell of sickness" which lasted some time, and in which paralysis of the left side gradually came on. She did not walk until the fourth year. . . . She now favors the left side in walking, and the arm and leg are stiff. Has slight power over arm, but it and the hand are in constant, irregular motion; fingers are extended in regular order, and she has no control over them. She can move the arm about quite well.

Case LXXVI.—Edith W., æt. six years. H., 301. Birth natural at full term. Father died of phthisis. At four or five months noticed that the child did not use the right arm. Began at two years to pull herself up by a chair, and at two and a half years learned to walk, and then dragged the foot. Has been improving. Face not affected. Is intelligent. Choreic movements of right hand and arm. January 25, 1888, condition as follows: Is a well-grown, fat child. Walks with a decidedly hemiplegic gait. Sits with hands quiet in her lap, the right on the left. When excited, or on attempting to make any movement, there are irregular choreic movements in the right hand and arm. In grasping an object picks it up with the hand, not with the fingers; as the object is approached the fingers jerk in various directions, are separated from each other and extended in more or less orderly sequence. Some stiffness in the arm during these movements. Very similar motions are present in the foot and toes, and the leg is a little stiff. Knee-jerk in right leg exaggerated; no ankle clonus. Intelligence good.

In one case there were associated movements of the paralyzed arm on attempting motion with the other one. Allied to this, doubtless, is the not infrequent irregular jerking of the arm in the act of walking. Sometimes it is thrown in a curious way behind the back.

Aphasia. Speech was affected in thirteen cases, in five of which the children were under three years of age.

The following are illustrative cases:

Case I.—Cecilia P., æt. twelve years. H., 25. Healthy when born; one of seven; others healthy. Father has had hemiplegia for three months. When two years old awoke paralyzed on right side; became comatose and remained unconscious for two days. Lost power of speech for six weeks. Paralysis persisted for six months; the leg gradually improved. Rigidity came on in affected side a few months after the attack. Has had, at times during the past three years, loss of consciousness, with convulsive movements chiefly of right side. Has had two or three in a day but may not have any for a week or more. Has a characteristic hemiplegic gait. Leg is a little stiff; muscles somewhat wasted; one arm smaller than the other and flexed; the fingers also flexed and contracted.

Case XI.—Robert M., æt. thirteen years. H., 91. No injury at birth. One year ago sudden paralysis of the right side, which was preceded for a day by loss of power of speech. The face was also drawn. Had convulsions a few weeks after the hemiplegia, but not at the time. Began to walk eight weeks after the attack, and recovered speech about the same time. Arm has improved but little; is stiff. Convulsions at intervals. Is improving.

Case XXXIII.—Mathew C., æt. ten years. I. P., 19. Good family history. Well until August, 1883, when present trouble began. Had vomiting, diarrhœa, great headache and photophobia, which lasted four days, and on the fourth day there was complete, right hemiplegia, including face, with aphasia. In a month the child began to get about; the aphasia was complete for one week, and then the power to walk gradually returned. Walks well but slowly and stiffly. Arm contracted. Right face is still smooth, and the dimple is gone.

Case LVIII.—Ellen McC., æt. six years. C. D. C., 177. Parents healthy. Healthy until three years of age. Then had a fit, lasting, with intervals, for nine days, and, at the end of that time, convulsive movements confined to right side; right hemiplegia followed, and also loss of speech. Gradually regained power of walking; has not yet regained power in arm. Began to speak in a year, and mental condition improved. Ever since first attack has had attacks of unconsciousness every day; jumps, falls to ground and immediately rises again, looking bewildered. No prolonged convulsion until ten days ago. During this time has had none of the lesser attacks. Has had as many as fifty to sixty of these "jumps." Injures herself much by the falls. During attacks, convulsive movements of left side of body and face, and she screams. Does not bite tongue; speech affected since second attack. *Status præsens*: Right arm smaller than left; contractions of flexors of forearm and wrist, not of her fingers. Right leg trifle shorter than left, and slight contraction of tendo Achillis.

Of these thirteen cases twelve were associated with right and one with left hemiplegia. The number affected is much smaller than in the collected series of Wallenberg,[1] whose statistics give forty-five cases of speech disturbance in ninety-four right hemiplegias and seventeen cases in sixty-six left hemiplegias. In Gaudard's[2] fifty-five right hemiplegias there were twenty-five cases of disturbance of speech, seventeen of which were true aphasia. There were eight left hemiplegias with aphasia. Bernhardt,[3] who has made a very careful study of this condition in children, says that in a majority of the cases of cerebral palsy, no matter on what side, there is affection of speech, usually transitory. In one case of our series the aphasia was associated with left hemiplegia. Usually the power of speech begins to return in a short time, but recovery may be deferred for a year (Case LVIII.) and in Case XVII., the child had not spoken six months after the lesion. In several instances recovery was incomplete.

In eight of the twenty-two cases at Elwyn, there is absence or profound disturbance of speech, but the patients are idiots or idio-imbeciles who have never acquired fully the power of speech.

Mental defects. A lesion so serious and extensive as that which is associated with infantile hemiplegia may seriously interfere with cerebral development, and, among the most common sequences, we find various anomalies of intelligence. In the Infirmary series only twelve cases presented idiocy or imbecility at the time of observation, but it must be remembered that the majority of the cases came to the Infirmary a short time

[1] Loc. cit. [2] Loc. cit.
[3] Virchow's Archiv, Bd. 102.

after the onset of the paralysis, so that our records on this special point are by no means complete. In Gaudard's series—80 cases—there were 15 feeble-minded and 19 idiotic children, while in Wallenberg's cases (160) there were 50 with mental defects, and in 15 cases imbecility followed the epilepsy so often associated with this condition. Three grades may be distinguished: idiocy, which is most common when the hemiplegia has existed from birth, or has come on at an early period; imbecility, which may increase with the development and persistence of convulsions; and a feeble-minded, backward condition, a retarded rather than arrested mental development. The 23 patients at the Pennsylvania Institution for Feeble-minded Children may be classified as follows: Idiots, 4; idio-imbeciles, 2; low grade imbeciles, 5; middle grade imbeciles, 6; high grade imbeciles, 6.

In connection with the mental disturbance which so often follows infantile hemiplegia, Merklin[1] has called attention to the development, later in life, of psychoses, even in cases which, in youth, have not shown any abnormalities.

Epilepsy. One of the most common and distressing symptoms is the occurrence of convulsive seizures, usually confined to the paralyzed side, but tending to become general. This hemiplegic or post-hemiplegic epilepsy affects, sooner or later, a considerable proportion of the cases. In the Infirmary series of 97 cases there were only 20 instances. In Gaudard's list (80) there were 11 cases of hemi-epilepsy, and 66 in Wallenberg's series of 160 cases. At Elwyn of 23 cases, 15 had epilepsy.

The attacks begin a variable time after the onset of the hemiplegia, mostly within two or three years, though they may be deferred eight or ten years, or even longer. In some instances the paralyzed limbs are convulsed within a few weeks.

These seizures may be either (1) attacks in which the child is simply dazed for a moment or two, occasionally longer, without any motor involvement; (2) spasms beginning in and confined to the affected side, without loss of consciousness—the true Jacksonian epilepsy; (3) general convulsions which begin in the paralyzed limbs, and are usually accompanied by loss of consciousness. All three forms may occur in one case, but by far the most common and characteristic is the hemi-epilepsy with retention of consciousness.

The following illustrative cases will give an idea of these attacks:

Case XCVI.—Patient of Dr. Mitchell, at present in the house. The hemiplegia is left-sided, and dates from shortly after birth. As the child sits on the floor the eyes will suddenly become fixed, deviate strongly to the left, the head begins to nod (the so-called nodding epilepsy, E. nutans). The left arm, which is constantly stiff, may be more closely retracted, but often the fixing of the eyes and nodding motion of the head alone indicate that a fit is present. After a few moments the child wakes up with a start and resumes its play.

In *Case LXIV.* the child, æt. two years, became hemiplegic (left) at the tenth month. When twenty months old she began to have spasmodic contractions of the left arm and leg, lasting for about five minutes, and occurring several times a day. The arm would be jerked up, the leg twitched, and the eyes became fixed. Just before they come on, she gets quiet, and, if nursing, drops the nipple. With cessation of the attack she draws a deep breath, and is then as bright as ever.

In the following case the lad had post-hemiplegic movements, as well as distinct convulsions, which sometimes become general:

Case LXXIV.—Charles W., æt. thirteen years. H., 323. Was healthy as a baby. Birth natural. In August, 1881, had a "sick spell" from Wednesday to Friday. While dressing on Sunday, lost power entirely in left arm, leg and face. Was in bed two months. He slowly regained power of leg. Since then has had fits. *Status præsens:* Is fairly intelligent; has bent head; no scar on head. Characteristic hemiplegic gait; drags the left leg; left arm smaller than the right; it is wasted, and possesses very slight power of movement—chiefly flexion. Spastic rigidity of flexors of the wrist, so that the carpus cannot be extended. Often in the day, as many as ten or fifteen times, the arms will stretch out from the side, and the fingers will extend, first the little and then the others in order. Face muscles will also work. He has other sorts of attacks, in which the movements may begin as these, and be confined to the arm or extend to the entire side of the body. He never loses consciousness, and never sleeps after the attacks. Has as many as three or four in a day. He has headache, but not worse on one side. Knee-jerk exaggerated on left side.

Case XVIII.—Annie E., æt. ten years and six months, I. P.$_1$, 157. Three other children. Was quite healthy until the sixth year, and was a very bright, intelligent child. Had a convulsion one night after exposure to intensely cold weather. The spasms were on the right side. They recurred at intervals for a year, always on the right side, and she gradually began to lose power on this side. When about nine years old the convulsions became general, but they began on the right side. They have become more numerous, and she has had as many as fifteen in a day, and even four or five in an hour. *Status præsens:* Dull, stupid-looking girl; marked spastic hemiplegia of the right side, arm and leg rigid. Fingers strongly flexed in the hand. Heart normal.

MORBID ANATOMY. Although the clinical features of infantile hemiplegia are as well characterized as those of infantile spinal palsy, our knowledge of the pathological conditions on which the former depends is, in comparison, still very defective. As in hemiplegia of adults, the lesions are variable, and the symptoms may be produced by any destructive process in the cortico-spinal section of the motor tract. It is surprising how few are the observations made shortly after the onset of the paralysis. The great majority of the post-mortems have been made after the hemiplegia has lasted for months or years, when all trace of the primitive lesion has disappeared.

I have analyzed the records of ninety autopsies in cases of hemiplegia coming on in infancy or childhood. The majority of these are contained in the articles of Cotard,[1] McNutt,[2] Gaudard,[3] Richardiere[4] and Wuillamier,[5]

[1] St. Petersburger med. Wochenschrift, 1887.

[1] Cotard: De l'atrophie partielle du cerveau. Paris, 1868.
[2] Loc. cit. [3] Loc. cit.
[4] Etude sur les Sclerose encéphaliques primitive de l'enfance. Thèse de Paris, 1885.
[5] Loc cit.

but I have, as far as possible, referred to the original cases, and have been able to extend the list of the forty-eight autopsies analyzed in 1886 by Wallenberg. The right hemisphere was affected in 39 cases, and the left in 51. It is interesting, as bearing upon the prognosis, to note in seventy cases the ages at which death occurs: under two years, 4; between second and fifth year, 10; from fifth to tenth, 8; from tenth to twentieth, 18; from twentieth to thirtieth, 12; thirtieth to fortieth, 4; fortieth to fiftieth, 8; above fifty, 6. I have excluded all cases of hemiplegia coming on after the fifteenth year, and, in the great majority, the onset dated from convulsions in the early years of life.

The lesions may be conveniently grouped under three headings:

1. *Embolism, thrombosis and hemorrhage.* In this group, comprising sixteen cases, the patients did not long survive the attack, and a study of the conditions found post-mortem might be supposed to throw considerable light on the nature of the initial lesion. In the cases of Gibb,[1] Vernois and Valleix[2] the condition was congenital. The mother, in Gibb's case, had received a blow on the abdomen, and the child was stillborn, with rigidity of the limbs on the left side. There was a clot in the right hemisphere above the ventricle. In the cases of Vernois and Valleix the labor was difficult, and the paralysis existed from birth. The children lived for forty-nine days and three and a half months respectively, and, in both, extravasation existed in the neighborhood of the ganglia. In the cases of Wrany-Neureutter,[3] Taylor,[4] Callender,[5] Kelly Johnson,[6] Barlow,[7] there was heart disease, with embolism of the middle cerebral artery. A case of Henoch's[8] was also embolic. In two cases of Callender,[9] in one of Lewkowitsch, and in one of Reimer, there was hemorrhage. In a case of Abercrombie,[10] the right Sylvian artery was plugged by a firm thrombus. In Case XII. of a series of aneurisms of the larger cerebral arteries, which I reported from the Montreal General Hospital,[11] a boy of six years, with left hemiplegia, there was hemorrhage into the longitudinal fissure, and laceration of the median surface of the right hemisphere, caused by rupture of an aneurism of the right anterior cerebral artery. In a case of Dulles,[12] in a child of six months, there was hemorrhage into the ventricles.

Thus, of the sixteen cases, there was plugging of a Sylvian artery, usually embolic, in seven, and hemorrhages in nine. In striking contrast to the majority of the cases of infantile hemiplegia, is the significant fact that in this group the age at onset is high. Excluding the three congenital cases, there was only one child under three years, while ten were over six.

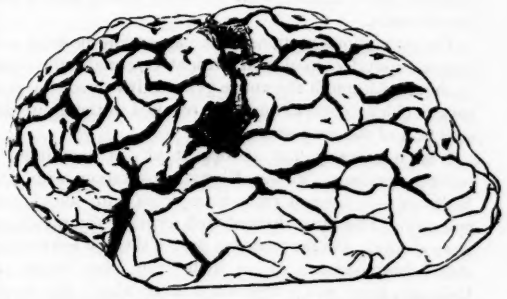
2. *Atrophy and sclerosis.* In fifty cases there was wasting with induration, either of groups of convolutions, an entire lobe, or, in some cases, the whole hemisphere was affected.

The following cases from the institution at Elwyn illustrate this condition in a typical manner:

Male, æt. sixteen years. Family history good. During measles when a child, he became paralyzed on the right side, and had aphasia. He regained partially the use of the leg, but did not recover speech. There was complete loss of power in the arm. He had repeated convulsions, in one of which he died. There was no sensory disturbance.

The only lesion found was in the left hemisphere. The brain was of full size, and looked natural; the membranes stripped off readily, except in the Rolandic region on the left side, where the pia mater was greatly thickened and adherent. As shown in the cut, Fig. 1, which is taken

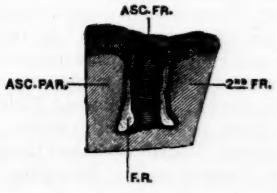
FIG. 1.



Left hemisphere, showing sclerosis in the Rolandic region.

from a photograph by Dr. Wilmarth, there is a depression in the neighborhood of the fissure of Rolando, and the fissure itself is not evident except at its upper third. So far as can be made out, the ascending frontal convolution in the greater part of its extent is atrophic, reaching to its lower end, but above there is at least half an inch unaffected. The central portion of the ascending parietal is also involved. From these regions the thickened membranes could not be removed without tearing the brain substance. The paracentral lobule, the third frontal and the insula did not appear to be affected. The cord, unfortunately, was not examined.

FIG. 2.



Section through the sclerosed area. *Asc. Fr.* Ascending frontal gyrus. *Asc. Par.* Ascending parietal. *2d. Fr.* Base of second frontal. *F. R.* Fissure of Rolando.

Sections across the sclerosed area, Fig. 2, show a complete atrophy of the ascending frontal gyrus and of the contiguous surfaces of the adjacent convolutions. The pia is thickened and closely adherent, particularly where

[1] Gibb: Lancet, 1858.
[2] Quoted by J. Lewis Smith. Diseases of Children, 4th edition.
[3] Quoted by Wallenberg, loc. cit.
[4] British Med. Journal, 1880.
[5] St. Bartholomew Hospital Reports, vol. v.
[6] Medical Times and Gazette, 1880.
[7] British Medical Journal, 1876.
[8] Vorlesungen über Kinderkrankheiten. Berlin, 1883.
[9] Loc. cit.
[10] British Med. Journal, 1887, i.
[11] Canada Med. and Surg. Journal, 1886. Trans. Path. Soc. Philadelphia, vol. xiii.
[12] Philada. Med. Times, vol. vi.

it dips down to the top of the wasted convolution. In the fissure of Rolando, a loosely arranged connective tissue, containing numerous bloodvessels, unites the opposed pial membranes. At the bottom of the fissure there is a wide sulcus, containing several large veins. In the shrunken ascending frontal convolution three layers of tissue can be readily distinguished, even with a low-power lens: (1) Beneath the pia is a narrow layer, resembling closely the normal first layer of the cortex, a granular matrix with a few nuclei arranged centrally, and, here and there, spaces, probably vascular. Bloodvessels pass through this part from the meninges. (2) A wider, more loosely arranged layer, with numerous nuclei and distinct fibres, among which are small arteries with thickened walls and dilated capillaries. In the deeper portion of the gyrus there are irregular spaces, some of which are large enough to be seen with the naked eye. (3) A central stem, composed of a close network of fibres, looking a little more condensed than the ordinary white matter, with scattered nuclei and a few bloodvessels.

The contiguous portions of the ascending parietal and second frontal convolution present essentially the same change. Although the entire gyrus is involved, the process is chiefly cortical and has resulted in the entire destruction of the gray matter.

I have recently had an opportunity of examining a second specimen at the Elwyn Institution with Dr. Wilmarth—a case of right hemiplegia with idiocy and epilepsy. The brain looked well formed; the meninges were normal. On the posterior part of the first left frontal, about three-quarters of an inch from the fissure of Rolando, there was a depression, over which the membranes appeared normal. The base of the first and the top of the ascending frontal gyrus had an opaque-white appearance, contrasting strongly with the surrounding tissue. On section this was seen to be an area of induration passing into the cerebral substance for at least an inch, and cutting with great resistance. A second opaque-white block existed in the hinder convolution of the quadrilateral lobe. On the left side there were two of these masses, one in the lower occipital convolution, and the other in the supramarginal. These masses were firm, opaque-white in color, the pia over them not thickened and the contour of the convolutions not destroyed. The examination of the brain has not yet been completed, but the blocks correspond to the description given by Bourneville and other French writers of the sclerose tuberuse.

To the French writers we owe much of our knowledge of cerebral sclerosis. Cazanvielh,[1] in 1827, described twelve cases under the term agénése cérébrale. Bourneville[2] has recorded a number of observations from the Bicêtre, while Cotàrd,[3] Jules Simon,[4] Richardière,[5] and Delhomme[6] have more recently written monographs upon the condition. In clinical features the great majority of the cases conform to the description of infantile hemiplegia.

The skull may be flattened on the affected side, and it is not uncommon to find it very broad and prominent above the mastoid processes. In several of the cases the bone on the affected side has been greatly thickened. The dura is usually closely adherent, and osseous plates have been found, which, in Bell's case,[1] were so extensive that the right hemisphere seemed enclosed in a second bony casing.

The arachnoid is turbid and thickened, and the amount of cerebro-spinal fluid excessive. The pia mater is often so thickened and adherent that, on removal, portions of the cortex come away, leaving a roughened surface, and in these cases the condition suggests a meningo-encephalitis. This localized thickening and adhesion of the pia to the sclerosed convolutions is well illustrated in the specimen just described.

The sclerosis is usually diffuse and involves either an entire hemisphere or a single lobe, or it may be confined to one or two convolutions. In a few cases it has been in patches—insular. Nodular projection of sclerosed tissue (sclerose hypertrophique) may occur over the surface. The affected convolutions are small, of a grayish or gray-yellow color, often with a stippled, pitted surface, to which the pia adheres firmly. In contrast with the neighboring normal gyri, the appearance is very striking and characteristic. The reduction in size of the affected hemisphere may amount to a third of the bulk. In one case the atrophied hemisphere weighed 260 grains, the normal 1007 grains. The tissue may be a mere shell over a dilated lateral ventricle, as in the cases of Baud[2] and Piorry. In many cases anfractuosities and small cysts have been found in and about the sclerosed tissue. Some of these cysts are evidently the result of old hemorrhages, as hæmatoidin crystals have been found in the walls. This is particularly the case with cysts in the neighborhood of the basal ganglia. In all of the fifty cases the Rolandic area was involved to a greater or less degree, in some cases affected alone, as in the brain figured; in others, involved in a widespread process. Undoubtedly the motor region, the area of the cortical distribution of the middle cerebral arteries, is most often affected, but this is not always the case.

Thus it is interesting to note the distribution of the lesions in ten specimens of sclerosis of the brain in the Museum of the Elwyn Institution.

I. R. H. Superior parietal lobule, patch ½ x ¾ inch, depressed meninges adherent.

II. R. H. First and second frontal. Occipital. L. H. Occipital lobe almost destroyed. Superior parietal, posterior half. Anterior two-thirds. First frontal, second frontal, slightly.

III. R. H. Cuneus. First frontal, extensive; gyrus fornicatus. L. H. Gyrus hippocampus, lingual, and occipital. First frontal slightly.

IV. R. H. Occipital lobe, outer aspect; supra-marginal; occipital end of first and second temporals; cuneus slightly. L. H. Temporal lobe, leaving the first untouched; supra-marginal and the entire angular group.

V. L. H. Gyrus fornicatus almost destroyed. Cyst on the middle of first frontal. R. H. Insula smooth; gyri not evident. Posterior half of first temporal; Sylvian ends of both central gyri. Middle portion of first and second frontal and posterior part of third frontal; gyrus fornicatus.

[1] Archives générales de Méd., 1827.
[2] Archives de Neurologie, tomes 1–5. [3] Loc. cit.
[4] Revue men. des Maladies des enfants, 1883 and 1884.
[5] Loc. cit.
[6] Contribution a l'étude de l'atrophie cérébrale infantile. Thèse de Paris, 1882.

[1] Archives Générales, 1831. [2] Quoted by Gaudard.

VI. L. H. Normal. R. H. Supra-marginal and angular gyri, encroaching on occipital; posterior third of first, second and third frontal.

VII. Blocks of induration. Sclerose tubereuse scattered over both hemispheres.

VIII. L. H. Normal. R. H. Temporal, parietal and occipital convolutions uniformly sclerosed; not a normal looking gyrus in any of these lobes. Frontal lobe quite natural looking; occupies more than three-fourths of the hemisphere. Patient was an epileptic; no paralysis.

IX. The case given in full. R. H. Normal. L. H. Sclerosis of ascending frontal and part of ascending parietal.

X. R. H. Nodular sclerosis, first frontal and base of ascending frontal. Patch on posterior gyrus of quadrilateral lobe. L. H. Patch on lower occipital, second on supra-marginal gyrus.

Dilatation of the lateral ventricle on the affected side is frequently mentioned; the basal ganglia may be flattened. In all the recently reported cases a descending degeneration of the pyramidal tract is described. In the cases of extensive atrophy of one hemisphere the opposite hemisphere of the cerebellum has been found smaller. The condition of the vessels has not attracted sufficient attention. In two cases Jendrássik and Marie found important changes in the walls of the cortical arteries to which we shall again refer.

3. *Porencephalus.* Associated as this condition invariably is with atrophy, of which it is indeed only a final result, to consider it separately is not strictly correct, and yet precision may well yield to the manifest convenience of grouping together for analysis the cases which present this lesion. Porencephalus represents a loss of substance in the form of cavities or cysts, situated at the surface of the brain, either opening into or bounded by the arachnoid, and often passing deeply into the hemisphere, reaching even to the ventricle. It was present in twenty-four of the ninety autopsies in hemiplegia. In eighteen of these cases the onset of the paralysis was noted. In six it was congenital. In eleven the hemiplegia came on in very early life after convulsions. In one it appeared to be the result of a fall at the age of two years. In six of the cases death occurred before the tenth year; in five between the tenth and twentieth year; in five between the twentieth and thirtieth, and in eight after this age. The extent of the defect was very variable, from a few convolutions to half a hemisphere. In all of the cases the motor region was involved to a greater or less extent. Although occurring in other parts of the brain in the great majority of cases the districts supplied by the middle cerebral arteries are affected. It is worthy of note that this condition usually corresponds with definite areas of vascular distribution.

DIAGNOSIS.—The more frequent onset with convulsions, the hemiplegic character of the palsy, the absence of rapid wasting of the affected muscles and the retention of electrical reactions are features of the early stage of the disease sufficiently well characterized to exclude, in most cases, infantile spinal paralysis. The rigidity of the muscles, the increase in the reflexes, the gait, the distribution of the residual palsy, the impaired intellect, and the frequent onset of convulsions clearly characterize the later stages.

There are cases, however, which present difficulties, owing to irregular distribution of the paralysis. Thus the following case of spastic crural monoplegia is probably, from its character, of cerebral origin.

Case XXV.—James H., æt. five months. I. P., 125, Healthy when born and until two and a half years old, when, for two weeks, he had fever, which was preceded by screaming spells. He seems to have pain in the right leg, and the back seemed painful and stiff. Then rigidity appeared in the left leg. During the attack he was delirious. The arms were never affected. There was no loss of sensation at any time. The condition is now confined to the left leg. The foot can neither be flexed nor extended, and is shorter than the right. Cannot lift the thigh. Can flex the leg slightly. Cannot stand on left leg. There is a difference of one and three-quarters inches in circumference of the legs, and of one and a half inches in that of the thighs. The reflexes are increased.

In the following case there was, at first, right hemiplegia, with the involvement, also, of the left arm, a distribution suggestive of spinal palsy, but the history clearly shows that the origin was cerebral.

Case LXXXVI.—Mary J., æt. two years and a half. H., 345. The second of three children; others well. Family history good. Mother fell three days before confinement, and was delivered of the child prematurely at eighth month. Birth normal. About May 30th, when two years old, was peevish and whining for a time, and then had convulsions, in which the mouth and face were twisted to the left, and she moved hands and arms. Both arms were paralyzed; and the right leg, after the attack. It was five weeks before she began to use the left hand, and she has never regained power in the right. She began to use the right foot in about two months. *Status præsens:* Cannot walk, but slides along on her buttocks. Mind is deficient; cannot talk; but understands what is said to her. Cranium microcephalic; biparietal diameter, 4.5 inches; occipito-frontal, 6; circumference, 17½. Slight internal squint. Rigidity of right leg at knee. Right hand is clenched, fingers extended with difficulty; hand seems slightly smaller than the left; no difference in forearms. Right hand gets cold and blue at times.

At the Elwyn Institution there is a remarkable case which must be regarded, I think, as one of post-hemiplegic epilepsy. All trace of the hemiplegia has disappeared, but there remain slight wasting, increase of the patellar reflex and occasional attacks of Jacksonian epilepsy, to indicate the nature of the original trouble. As the fits became general, and were aggravated at each menstrual period, oöphorectomy was performed, with relief at first; but, as might be expected, they have returned.

Case XXIII. (Elwyn series).—Annie S., æt. twenty-three years. Inmate of instiution for one year. Mother in an insane asylum. When between three and four years old, fell and, for a long time after, could not walk; weakness of the left side. In one history of this case it is stated that the paralysis came on after scarlet fever. Had spasms at the age of twelve. Always began in arm, and for a long time were in the arm alone. Had the spasms worse at menstrual period, usually three or four, either just before or just after the period. Oöphorectomy was performed two years ago, February, 1886. Better for a year. Is a well nourished girl; gives a good account of herself. Left arm is smaller than right. Left

forearm, 9 inches; right, 9⅞. Wrist: left, 6¼, and right, 7. No spasm, no rigidity; movements perfect. Left leg smaller than right. Calf, 12⅞. Right calf, 14¾. Foot; length: left, 8½; right, 9. Left knee-jerk +. No ankle clonus; no heart lesion. Every time the fit begins in the left arm, the fingers are drawn up and the arm gets stiff. She has then to lie down on the sofa, and they become general; sleeps after them; has often vomiting. Has not had an attack since February, 1888. At first, while in the institution, they recurred for a number of months with regularity.

In certain *cases of cerebral tumor* the symptoms are those of spastic hemiplegia. Seeligmüller[1] records such an instance of tubercle of the meninges, beginning with convulsions and fever, with left hemiplegia and contractures in hand and foot; and I have described a case of glioma[2] in a girl of thirteen years, in whom spastic hemiplegia had lasted for some years, and who had Jacksonian epilepsy.

Paralysis of the face and of the upper extremity may result from the application of the forceps; the latter more commonly from the manipulations of the accoucheur. These *obstetrical paralyses*, as Duchenne[3] called them, could rarely be confounded with those due to cerebral causes. They are fully considered by Nadaud,[4] and Budin[5] has recently given an excellent description of the brachial palsy.

PROGNOSIS.—Parents are naturally intensely anxious as to the prospects of a child attacked with hemiplegia. As a rule, the younger the subject the greater the liability to serious and permanent damage. The nature of the lesion doubtless has an important influence, vascular obstruction more favorable than meningo-encephalitis, and the latter than tumor, but the diagnosis of the exact condition is by no means always easy. Of the bodily defect, about which the greatest uneasiness is displayed, we can almost invariably predict great improvement, particularly of the leg. Perfect recovery of the arm is rare, of the face more frequent. The development of post-hemiplegic movements is a bad omen, as such cases are more likely to have epilepsy, which constitutes one of the most serious sequences of the disease. Not only are the attacks dangerous in themselves, but they undoubtedly tend to aggravate existing mental defects. They may not develop for some years after the onset of the paralysis and may be deferred till the period of puberty. More distressing still to the relatives is the enfeebled mental state which so often follows infantile hemiplegia. As the records of the Pennsylvania Institution for Feeble-minded Children at Elwyn show, the percentage of the cases due to this cause is by no means small. Training does much for them, but for too many the outlook is not hopeful, and, as Merklin states, even when in childhood they escape imbecility, they are very liable in adult life to become the subjects of psychoses. *Quoad* life the prognosis is good, as shown in the post-mortem reports of ninety cases, in a large proportion of which the age at death was over twenty years.

[1] Jahrbuch für Kinderheilkunde, Bd. xiii.
[2] American Journal of the Med. Sciences, 1885.
[3] Traité de l'electrization localisée, 3d edition.
[4] Des Paralysies Obstétricales des Nouveau-nès. Paris, 1872.
[5] Le Bulletin Médical, No. 20, 1888.

ORIGINAL ARTICLES.

A CASE OF EXTRAUTERINE PREGNANCY; EMBRYO DESTROYED BY A 20 MILLIAMPERE CURRENT WITHOUT INTERRUPTIONS;

Together with Remarks on the Best Manner of Using Electricity for this Purpose.[1]

BY A. H. BUCKMASTER, M.D.,
OF BROOKLYN.

ON the 16th of February, 1888, Dr. A. J. C. Skene requested me to see Mrs. C., for the purpose of destroying an embryo that was developing outside of the uterus.

The patient was an Englishwoman, twenty-nine years of age, and gave me the following history: She had been married four years; had one miscarriage two years ago, and has a child three years of age. Her menstrual periods recur regularly, and have always been plentiful. She was troubled with dysmenorrhœa previous to her marriage, but since then has been free from pain.

Last October the patient changed her residence, and menstruated the latter part of that month. She did not menstruate the following month (November), and thought she was pregnant. She had never passed over a period except when *enceinte*, and was much troubled with nausea and bladder irritation, symptoms she had experienced previously only when bearing child.

On the 26th of December (the day on which the Christmas feast was held), while assisting in the preparation of the dinner, she had what she described as a "very queer turn." She said: "I never felt better in my life than I had that morning." A short time before dinner she became nauseated and went to the bath-room to vomit. She suddenly felt a violent pain in the "pit of the stomach," heard a ringing noise in the ears and fainted. She lay on the floor groaning and did not have strength enough to call loudly for assistance. She was found in this condition by her husband and removed to her bed. It is said that her face was very pale, and she fainted at each attempt to sit up. She was very thirsty, and "thought the doctor cruel" in that he did not permit her to drink all the water she desired.

Dr. Francis W. Bowron, the family physician, was sent for, and from him I obtained the following history:

"On December 26th I was summoned in great haste to Mrs. C., who was reported to be dying. I found her in a condition of collapse, pulseless at the wrist, the lips bloodless and the face pale and ghastly in expression. The heart was irregular and intermittent, and there was great pain in the abdomen. She was treated as a case of internal hemorrhage and in the evening rallied. The next day the symptoms of pain and shock recurred, and on the 28th there was again an attack, but of much less

[1] Read before the New York Academy of Medicine, Section on Obstetrics and Gynecology, May 24, 1888.

severity than before. On the 12th of January there was a recurrence of these fainting spells, also on the 13th and 14th of January. Dr. Skene saw the patient, who had been rapidly increasing in size, on the 14th of February, and made the diagnosis of extrauterine pregnancy. He recommended that Dr. Buckmaster be called in to use the electric current for the destruction of the fœtus. The increase in size of the patient's abdomen was arrested after the first treatment by Dr. Buckmaster. The patient is now her natural size and in fair health."

The following notes were obtained from Dr. Skene:

"I saw Mrs. C., in consultation with Dr. Bowron, on the 14th of February. I found the lower part of the abdomen enlarged. The right iliac region was the most prominent, and there was slight tenderness on touch. Dulness on percussion from the right ilium across the lower part of the abdomen and upward to somewhat more than half the distance to the umbilicus. On the left side the dulness did not extend upward more than two inches. An ill-defined mass, elastic to the touch, was distinctly traceable on the right side. Vaginal examination showed that the uterus was crowded forward toward the pubes, and that it was somewhat enlarged and softened. The sac of Douglas was occupied by an elastic mass, in which fluctuation could be detected, and which felt not unlike a small ovarian cyst, and seemed to be part of the tumor felt in the right iliac region, from which the uterus appeared free.

"The diagnosis was between an ovarian cyst fixed on the right side and an extrauterine pregnancy. Taking the physical signs with the clinical symptoms a diagnosis of the latter condition was made. The general impression left on the mind of the examiner was that, without doubt, it was a case of extra-uterine pregnancy."

I saw the case with Dr. Bowron on the 16th of February, and found the conditions as just described by Dr. Skene. The patient stated that she had progressively increased in size during the past three weeks.

After carefully considering the different methods for destroying the fœtus, none of which seemed altogether satisfactory, I determined to use the galvanic current without interruptions, for reasons that will be stated later.

The current[1] was gradually increased by means of a rheostat until a strength of 20 milliampères was reached—no attempt to go further than this was made, as the patient felt some pain. After maintaining the current for ten minutes it was gradually decreased. The patient experienced no shock. For the abdominal electrode was used a large *plaque* of clay with sixty-four square inches of contact; the vaginal electrode was of steel covered with wet absorbent cotton. I was careful to press down on the abdominal electrode as much as the patient could bear, and also to raise the electrode in the vagina so that the current could be in as intimate relation to the fœtus as possible. I regard this as important, because the fluid about the fœtus offers so much resistance to the passage of the current. At the end of the *séance* the patient declared herself much relieved from the pelvic pain that had greatly annoyed her. I attributed this relief to the sedative influence of the positive pole. I had used the positive pole in the vagina anticipating this result.

Six days after the first treatment the patient was again seen and her physical condition found to be much improved. The appetite had returned and the abdominal circumference had markedly decreased. Both the patient and her friends were delighted with the result. The physical examination was very satisfactory. The cyst seemed to have lost much of its fluid contents. I felt quite sure that the child was dead, but as the thorough examination started up the old pelvic pain, I made another electrical application. The third, and, subsequently, three more applications were made for the relief of this pain, at intervals of about six days. None proved so efficacious as the first.

At the third treatment the measurement around the abdomen had increased about an inch, and six days later was half an inch more, but after this, the circumference measurement steadily decreased. Toward the end of February and also at the end of March, the patient menstruated.

The patient was seen three months after the first treatment and was in very good health. A hard mass can still be felt by making a vaginal examination, and there is a slight tenderness about it.

The questions which would naturally suggest themselves with this and other cases of this kind are:

1st. *Was the diagnosis of extrauterine pregnancy warrantable?*

We had the subjective symptoms of pregnancy already enumerated: nausea and irritable bladder, and these symptoms were of special significance because they had existed with the previous pregnancy and at no other time. Coupled with the cessation of the menstruation, the diagnosis of pregnancy would be highly probable. The uterus, although somewhat enlarged, did not correspond in size or condition of the cervix with the pregnant uterus of this period. It was pushed forward, and the fundus could be felt above the pubes. In the sac of Douglas was a large fluctuating mass rapidly increasing in size. About the time the second period was due the patient suffered from cramp-like pains followed by signs of internal hemorrhage.

From the foregoing facts the case is about as clear as possible, except that there is no definite statement as to the casting off of the decidua, but we know it is often impossible to utilize this sign.

2d. *Was the child living when the electricity was first applied?*

The rapid increase in size observed by the doctor and the patient during the latter part of January and

[1] A fifty cell chloride of silver battery, made by Mr. Barret, was used.

during February, after the symptoms of a peritonitis had subsided, indicated, by exclusion, a living ovum. Conversely we supposed the death of the ovum from the fact that the tumor decreased in size immediately after the treatment. It not only decreased in size but changed in character, losing its elastic feeling on account of the absorption of the fluid contents. It has been claimed recently that the placenta continues to grow after the death of the fœtus, but as we have seen no corroborative evidence, it is not worth consideration at present.

3d. *Is the uninterrupted current the best means for destroying the fœtus?*

I shall say but little as to the advisability of the use of electricity. So many eminent Americans have advocated its employment, that it has justly become known as the American plan of treatment. Although an Italian, Bachetto, first used the current for the destruction of the fœtus, he used it in connection with puncture, a procedure which indicates that he had no conception of the advantages of this potent agent. So, as Dr. Garrigues very justly remarks, the honor of priority may be justly claimed by America. Dr. T. G. Thomas, whose experience has been very large, says, in his characteristically forcible manner, "It has these great advantages: if an error of diagnosis has been made, this remedy will do no harm; if the diagnosis be correct, experience proves it to be sufficient in its effect; . . . and it requires no surgical skill in its use."[1] Many cases will undoubtedly appear as the literature of the subject expands, in which, after cutting into the abdomen, it will be found impossible to complete the operation.[2]

Three methods are in use for the destruction of the ovum by electricity.[3] In the *first* method we may mention the use of the primary or secondary current of the ordinary faradic machine. This method is the one that has been most commonly used. For the *second* method we use a galvanic current of from ten to sixty milliampères with interruptions; and in the *third* class we consider the use of the galvanic current of effective intensity without interruptions, and increased or diminished gradually.[4]

The first method depends for its effectiveness on the shocks produced by the rapid breaking of the current by the magnet. The current strength is insignificant, and is usually obtained from two cells. Landis[1] applied the poles of a Flemming faradic battery against the shoulder and opposite rump of a newborn rabbit, and then used the full force of the battery for five minutes, and yet the rabbit recovered. A newborn rabbit is killed by very slight violence, and it would appear from this and other experiments, which he made on minnows and beetles, that embryonic life is not so easily destroyed by this agent as one might imagine.

This idea will be confirmed in reading the very interesting history of a case of extrauterine pregnancy by Dr. Ely Van De Walker.[2] He used a powerful induction coil. He says:

"The irritation from one induction coil was such that it could not be tolerated elsewhere about the body for a moment . . . . . She had ten *seances* of half an hour duration each, on the same number of consecutive days . . . . . On the pelvic mass there was no evidence that I had made any impression whatever. Its size remained the same, and its resistance to the touch, or what I would prefer to term tension, was unchanged." He determined to prolong the treatment to an hour. "We did so for three successive days, using the full strength of the induction coil. On the third day we found evidence that the electricity was accomplishing its work."

The danger of producing rupture of an already weakened tube has been pointed out, but some of the recent writers are disposed to belittle this risk because we have no deaths directly traceable to it as a cause. We have had as yet too few cases reported to draw any such deduction, and the dangers of a possible rupture offer to my mind a valid objection against the use of the faradic current.

By the second method, in which a comparatively strong galvanic current is used, the advantages of the first method are rendered greater, and the danger of rupture is also increased. This is so true that I doubt if the second method is justifiable with our present knowledge of the subject. Dr. A. J. McCosh, speaking of a case treated by this method some time ago, says: "The contraction of the legs and abdomen was very energetic when the current was interrupted."[3]

On February 15, 1887, at a meeting of the Obstetrical Soctety of New York, Dr. Paul F. Mundé remarked that he had reported a case two years before in which one pole was introduced into the rectum, and twenty four cells were used with interrupted shocks; the fœtus was killed, but the patient received such a severe shock that she was collapsed, and was restored only after receiving repeated hypodermatics of brandy, ether, etc.[4]

We use the third method precisely as we use the galvanic current for the destruction of a fibroid

[1] Trans. Amer. Gyn. Soc., vol. lx.

[2] See autopsy by T. G. Thomas, Trans. Amer. Gyn. Soc., vol. viii. p. 167.

[3] The use of the static form of electricity is not considered because of the difficulties in the way of its application.

[4] At the meeting of the Section before which this paper was read the writer stated that he believed his case was the first one in which the current had been applied in the manner above mentione d. He finds, however, that in Dr. Janvrin's case, which antedates his, it was so applied at Dr. Rockwell's suggestion.

[1] Landis: Amer. Journ. of the Med. Sciences, October, 1885.

[2] Trans. Amer. Gynecolog. Assoc., vol. xii. p. 296.

[3] Trans. Amer. Gynecolog. Assoc., vol. ix. p. 173.

[4] Amer. Journ. of Obstet., April, 1887.

tumor. That a current of twenty milliampères strength has a profound effect upon the cellular structure is shown by experiments that I made upon the heart of a living dog,[1] in which it was observed that the striæ of the heart's muscle became granular and indistinct. I speak of this to indicate with what a potent agent we are dealing, and also it gives us a reason to understand how the current is effective.

In the case reported by the writer, twenty milliampères of current apparently caused the death of the embryo; but if this amount of current should prove for any reason inefficient, or if instant results are desired, it may be increased up to 100 or 150 milliampères if necessary, when there could be no doubt of the result being attained. Sixty to eighty milliampères are often borne without discomfort by the patient without an anæsthetic. The fluid about the embryo offers so much resistance that the electrodes should be brought as near the child as possible, and to accomplish this the abdominal electrode should be pressed down and the vaginal electrode raised under the mass.

The writer has not considered the question of the use of electricity in connection with puncture of the sac, because he believes, from the experience of reported cases, that this procedure is more dangerous than laparotomy.

To recapitulate in regard to the three methods of using electricity for the destruction of the fœtus:

1. The faradic current is not certain in its action and not without danger. It must be used a number of times and for prolonged *seances*.

2. The interrupted galvanic current is more effective than the faradic and by far the most dangerous of the three. It should never be used, because the other methods will accomplish all that is claimed for it, and it is in itself exceedingly dangerous.

3. The uninterrupted galvanic current will accomplish at once the death of the fœtus; it will relieve the intense pelvic pain by the sedative influence of the positive pole placed in the vagina; *it is without danger*.

In the application of this method, all that is necessary is any electric battery containing enough cells, connecting cords, a rheostat and a vaginal and an abdominal electrode.

The battery used by the writer was the fifty cell chloride of silver battery made by Mr. John A. Barrett. It weighs but eleven pounds and is 11x7x6 inches, so that it can be easily transported. Mr. Barrett has also invented a dry rheostat which can be carried in the pocket and which will prove very satisfactory if the current strength desired is not greater than seventy-five milliampères.

The abdominal electrode consists of two parts, a plate of copper and under it a pad of ordinary cotton batting, two inches thick when dry. The latter should be applied so wet that the water drips from it. The copper plate may be procured from a plumber at the cost of a few cents, and cut with tinners' shears to the shape desired. A hole should be punched through it, and then by means of a piece of copper wire it can be fastened to the connecting cord. For the vaginal electrode almost any of those in the market, covered with a layer of wet cotton, will answer the purpose, and if they are large enough there need be no fear of cauterizing the vagina.

The following rules for the application of the electricity may be followed with advantage:

1st. Use the positive pole for the vaginal electrode.

2d. The electrodes being in place and the connections secure, permit the current to increase in strength gradually, by means of the rheostat, until the patient complains of pain.

3d Press up the vaginal electrode and downward on the abdominal electrode, as much as the patient can bear.

4th. If the immediate destruction of the fœtus is imperative and the patient cannot bear more than twenty milliampères, use an anæsthetic and pass a 100 milliampère current.

5th. Decrease the current gradually at the expiration of fifteen minutes.

[1] Prize Essay read before the Alumni Association of the Long Island Hospital Medical College, 1888.

REPORT OF A CASE OF SEVERE HEMORRHAGE FROM THE STOMACH.

BY VICTOR C. VAUGHAN, M.D.,
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THE following case presents some features which are probably worthy of record:

April 28, 1888, about 6 P.M., I was called to see Mrs. S., the wife of a brother physician. I found that she had not been feeling well during the day, had excused herself from the supper table, and had walked into the hall, when she fell and began to vomit blood. A small quantity of the blood was thrown upon the floor, but the greater portion was received in a bowl, and this measured one pint. I found the patient very weak and faint, and I immediately injected into the arm twenty minims of Wyeth's fluid extract of ergot, and applied ice over the stomach. As soon as she was able to swallow, we gave her small bits of ice.

For nearly an hour she seemed fairly comfortable; then she began to complain of a sensation of fulness in the stomach, and soon blood poured from the mouth and nose. All of this hemorrhage was caught in a bowl, and it measured a full quart. It was bright red in color and clotted in the bowl. The reaction of the blood was not ascertained. The injection of ergot was repeated, the dose being in-

creased to thirty minims. The application of ice over the stomach was made interruptedly, with the hope of securing the full effect of cold upon the contractility of the bloodvessels.

Although the patient remained unconscious for some time after this hemorrhage, there were occasional attempts at vomiting, and after about thirty minutes a third vomiting of blood occurred. The amount of blood thrown up at this time could not be accurately determined, as it was received in a bowl containing water. This time the blood was dark and clotted, and from this we inferred that there had been no fresh hemorrhage, and that the blood now emitted had been poured into the stomach along with that which had been previously vomited. After a few minutes the patient regained consciousness, but she could not be moved in the slightest manner without becoming faint, and it was only after three days that her clothing could be removed, and fully two weeks passed before she could open her eyes without having the sensation of fainting. We did not dare to give stimulants to any extent for fear of raising arterial pressure, and thus causing a renewal of the hemorrhage.

The question of nourishing our patient now became a very important one. Feeding by the bowel was thought of, but the idea was dismissed on account of the existence of painful hemorrhoids. Indeed, it was found some days later that an attempt to wash out the lower bowel was followed by violent and painful spasmodic contraction of the sphincter ani, which placed the patient in an alarming position, and at another time an attempt to introduce a suppository was followed by similar symptoms.

After consultation, we determined to try some artificially digested food. A peptone was first tried, but its disagreeable taste caused nausea, and threatened to produce vomiting, which might have proved disastrous. Having used the beef peptonoids of Reed & Carnrick successfully in the treatment of cholera infantum, I determined to try it in this case. It was not objectionable to the taste and did not distress the stomach. For three days our patient was given no other food; then some of Carnrick's soluble food was added, and these preparations constituted the sole diet for three weeks. No medicine was given at any time, save a few drops of the fluid extract of cannabis indica, a few evenings, as a cerebral stimulant, in order to relieve the anæmic headache, which gave trouble, and to induce sleep. This medicine acted very pleasantly. Past experience with the patient in other forms of illness led us to abstain from the use of morphine, which had proven likely to cause nausea and vomiting.

The source of the hemorrhage in this case is of interest. Some eight years ago the patient had experienced a similar, but much slighter, hemorrhage. It was suggested at that time that the hemorrhage might be vicarious, as she had failed to menstruate, but in the present instance the physiological hemorrhage had been normal for some years, a period having preceded this hemorrhage from the stomach about ten days, and it may be stated here that there have been two normal periods of menstruation since the attack.

Although the patient's digestive organs have not been in the most vigorous condition, she had not before the attack complained of any special pain in the stomach, and she had during the year done full work as a teacher, besides considerable original work and writing. That she has a cirrhosed liver I think there can be no doubt, and I think that portal congestion, probably long continued, has had a large share in the causation of the hemorrhage from the stomach. However, the large amount of blood, and its bright red color, caused me to believe in the existence of an ulcer in the stomach. We know that such ulcers may exist without causing much distress.

THE INJECTION OF A SOLUTION OF COCAINE INTO THE URETHRA FOLLOWED BY DEATH.[1]

BY J. HENRY C. SIMES, M.D.,
SURGEON TO THE EPISCOPAL HOSPITAL OF PHILADELPHIA.

A. M. was admitted into the surgical ward of the Episcopal Hospital on February 23, 1888. Age, twenty-nine years, English. He gave a history of having suffered from stricture of the urethra some years before, for which the operation of external urethrotomy had evidently been performed. At the time of admission there was some difficulty in passing water, and the urine, he said, "comes out of an opening between the legs." Upon examination there was found the cicatrix of a perineal section, having a small fistula communicating with the urethra. The urethra was examined, and the existence of a stricture was ascertained, situated about four and a half inches from the meatus. The stricture admitted a No. 11 French bougie.

Gradual dilatation, by means of sounds introduced every other day, was the treatment under which the patient was placed for two weeks. Favorable progress was made, and the the urethra now easily admitted a No. 20 sound. Internal urethrotomy was determined upon, in order to remove all hindrance to the passage of urine through the urethra, and permit the healing of the perineal fistula. On March 3d, the day I had intended to perform the operation, the patient complained of sore throat, had a slight chill, and there was a slight increase of temperature. This proved to be nothing more than a mild attack of bronchitis. On March 9th, he was feeling quite well, and I had him removed to the operating-room for operation.

Previously to performing internal urethrotomy, I have, for the past year or two, injected into the urethra a solution of muriate of cocaine, which has lessened the pain of the operation, although not

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[1] Read before the Philadelphia Academy of Surgery, June 4, 1888.

completely rendering the parts insensible to the cutting. The strength of the solution used in my previous cases had been five per cent.

The man was placed upon the operating-table, one drachm of a twenty per cent. solution of muriate of cocaine was introduced into his urethra, by means of a long-nozzled urethral syringe which passed about four inches into the canal. The instrument had scarcely been taken out of the urethra when the patient made a foolish remark, the muscles of his face began to twitch, the eyes staring, pupils dilated, frothing at the mouth, face much congested, respiration interfered with, and ending in a violent epileptiform convulsion, lasting for some seconds. These convulsions were continued with increasing violence, several times a minute, the whole muscular system taking part in the spasms, requiring considerable force to keep him from falling off the table. The action of the heart was not much interfered with, and appeared only to be secondarily affected. It was the respiratory function that seemed first to fail, and then the heart's action became irregular and slow. The breathing was gradually more and more interfered with, the face—in fact, the entire surface of the body—became deeply cyanosed, the pulse slow, and at the end of twenty minutes from the first convulsion had ceased to beat. The man was dead.

The means employed to relieve the patient were all useless; nothing had any effect in controlling, lessening or in any way influencing the ultimate result, and I may say everything was promptly and efficiently done; the entire staff of resident physicians of the Hospital ably assisted me in my efforts, which unfortunately were futile.

The *post-mortem* was made by Dr. Grimm, Resident Surgeon at the Hospital. *Thorax*: Lungs normal, but much congested; heart normal, right side empty, left side filled with currant-jelly clots. *Abdomen*: Liver much congested; spleen presented on its surface several stellate cicatrices; kidneys much congested and also cicatrices similar to those seen on the surface of the spleen; they were thought possibly to be syphilitic in nature. The *urethra* was examined to ascertain if there had been a rupture made in introducing the syringe, but no such lesion was found. The *brain* showed the bloodvessels very much congested; its membranes on either side of the longitudinal sinus at the vertex, covering a space of two square inches, were thickened and closely attached to the brain-substance; this probably was the result of some previous inflammatory action.

The cases of poisoning by cocaine have been very thoroughly searched for and published by Dr. J. B. Mattison, of Brooklyn, in two papers, "Cocaine Dosage and Cocaine Addiction," February 15, 1887, and "Cocaine Toxæmia," January 15, 1888. In the first paper are reported four fatal cases due to this drug, and in the latter two more cases that resulted fatally. The cases in which symptoms of cocaine poisoning occurred with more or less severity, but not fatally, numbered in Dr. Mattison's first article over fifty and in his second paper over forty.

MEDICAL PROGRESS.

The Treatment of Migrainous Headache.—DR. JAMES LITTLE, before the Royal Academy of Medicine, read a paper on migrainous headache. He said he was in the habit of directing the patient, when he awoke with any feeling of headache, to take twenty grains of the salicylate of sodium in a wineglassful of water, made effervescent by the addition of a dessertspoonful of the granular citrate of caffeine, and, if necessary, to take a second or even a third dose at intervals of two hours. The effervescing caffeine made the dose a very palatable one, which the salicylate alone was not, and probably rendered it more useful; but that the good effect was not due to the caffeine was proved by the fact that the author had seen it relieve persons who had previously used the caffeine alone without benefit. It did not appear to lose its effect, as a patient, to whom Dr. Little gave it more than two years ago, said she found it as valuable as when she first began its use.—*British Medical Journal*, June 9, 1888.

Resorcin in Laryngeal Tuberculosis.—DR. FROHNSTEIN of Moscow (in the *Rossk. Med.*), states that resorcin is an excellent means for the relief of the discomfort and pain of tubercular ulceration of the larynx. He applies a ten to twenty per cent. solution with a brush, and directs, besides, the inhalation of a two per cent. solution several times daily. He prefers resorcin to cocaine.—*Centralblatt für die Gesammte Therapie*, June, 1888.

The Physiological Actions of Strophanthin.—A series of experiments on curarized dogs, conducted by POPPER, of Vienna, in the laboratory of von Basch, in which the action of strophanthin (Merck's) upon the arterial pressure, the pressure in the veins and in the pulmonary artery, and with reference to the relation of the heart to its nerves was investigated, led to the following conclusions:

1. The arterial pressure is raised. This is mostly to be referred to a change in the heart's work, for:

2. It occurs if the splanchnic nerves or the spinal cord, at the level of the first cervical vertebra, are divided before the intoxication.

3. The appearance of the exposed intestine negatives vaso-constrictor stimulation. While the arterial pressure is raised the surface becomes not paler, but rather redder.

4. The pressure in the veins conforms to the preceding. At the same time that the arterial pressure is raised, the venous pressure is either slightly increased or remains normal, or even diminishes.

5. The pressure in the pulmonary artery increases comparatively less than does that in the aorta. The relation between the aortic pressure and that in the pulmonary artery changes in favor of the former.

5. The irritability of the inhibitory fibres of the vagus disappears in the course of the intoxication; hence, at a certain stage, stimulation of the vagus causes no slowing of the pulse.

7. The irritability of the accelerator nerves remains intact throughout.—*Centralblatt für die mediniz. Wissenschaften*, June 2, 1888.

Melæna Neonatorum—In the *Deutsche medizin. Wochenschrift*, of May 31, 1888, DR. OTTO FROSS reports a case of melæna neonatorum, in a female infant, with recovery.

Blood was copiously passed by mouth and anus. The treatment consisted in placing the head low, surrounding the extremities with cotton wadding and hot water bottles; placing an ice bag upon the abdomen for two hours at a time, with intermissions of an hour; hypodermatic injections of ergotin and of camphor (of each three-quarters of a gr. twice or three times a day); the administration of the liquor ferri sesquichloridi (one drop every two hours in iced milk), cold solution of albumen and alcohol. At two months the child was as well developed as its age warranted. Melæna neonatorum is a rare affection, occurring once in 500 births (Henoch), or in 1000 (Genrich).

Iodoform for Hæmoptysis.—CHAUVIN and JORISENNE (*Le Prog. Méd.*, No. 20, 1888) recommend iodoform in pulmonary hemorrhage. These are two formulæ:

Iodoform . . . gr. ¾.
Extract of gentian . q. s. to make one pill.
S. Three to five pills in twenty-four hours.

Iodoform . . . gr. ¾.
Tannic acid . . . gr. iss.
Extract of gentian . q. s. to make one pill.
S. Three to five pills in twenty-four hours.

—*Therap. Monatshefte*, June 1, 1888.

A Case of Intussusception of the Stomach.—PROF. CHIARA, before the Verein deutscher Aerzte in Prag, stated that Engel had reported the occurrence, at times, shortly before death, of the slipping of the larger portion of the stomach over the smaller, as a result of excessive peristalsis; but no report of a true intussusception of the stomach had hitherto been made, and the following case must be considered as unique of its kind. It was that of a woman, aged fifty-four years, who had died after having been under observation for twelve days at Pribram's clinic. Several weeks before admission into the hospital, in consequence of severe physical strain it was thought, she was suddenly attacked with pain in the epigastrium, bloody vomiting and diarrhœa. The manifestations promptly disappeared under treatment, but soon returned with vehemence, in consequence of which the patient came to the clinic of Prof. Pribram.

She was found to be much emaciated and jaundiced. A cylindrical tumor, of varying consistency and size, was detected in the pyloric region; there was marked peristaltic action of the stomach, occasional vomiting of bloody or bile-tinged masses, and diarrhœa, from which a diagnosis of ulcerative carcinoma of the pylorus was made. At the autopsy on the 11th of March, of last year, there was seen a partial intussusception involving the greater curvature at the pyloric area, induced by a polypoid adenoma of the mucous membrane, and reaching into the upper portion of the duodenum, which could be reduced by slight traction on the greater curvature; the upper portion of the duodenum was much dilated and greatly hypertrophied.

The partial intussusception of the stomach had given rise to stenosis of the pylorus, with its consequences. The clinical manifestations led to the conclusion that the ready reduction of the intussusception observed post-mortem must have existed during life, and the contraction of the greatly hypertrophied upper portion of the duodenum had apparently caused the occasional replacement of the intussuscepted part to its normal situation.

Prof. Pribram remarked in connection with the diagnosis that the evidence of a cylindrical tumor in the pyloric region, the occasional bloody vomiting rendered plausible the view of an ulcerating carcinoma of the pylorus, with marked peristaltic movement of the stomach, though the early appearance of bile in the vomit, the interval of relief and the period of the occurrence of the peristaltic action of the stomach occasioned some doubts as to the correctness of the diagnosis.

Pribram explained the recurrence of the invagination by the tumor lying in the lumen of the pylorus being forced into the duodenum by the violent vomiting in the expulsion of an impacted gall-stone, which was found at the autopsy.

As to the treatment, as the tumor was mobile, operative procedure might have been thought of, but for the high degree of emaciation and the suspicion that, in view of the existing jaundice, the liver also was carcinomatous; though, even with a correct diagnosis, with the ulceration of the bile passages which existed as a result of the cholelithiasis, the success of an operation would have been questionable. But early operative measures, that is, with a better nutritive condition and prior to the impaction of the gall-stone, might have afforded permanent recovery.—*Wiener medizin. Presse*, March 27, 1888.

The Treatment of Gall-stone Colic. — MR. JONATHAN HUTCHINSON recommends (*British Medical Journal*, June 30, 1888) the use of anæsthetics to full insensibility, kept up for a long time, both preceded and followed by opiates, as the best treatment for all forms of gall-stone colic. It does not matter whether the stone is impacted in the common duct or in the bowel; we can scarcely do better than prevent spasm and favor relaxation of the parts concerned. By these measures, he has, in several cases in which he had been called in with a view to operation, succeeded in quite removing symptoms which were very urgent.

Oxidizing Oils.—R. BENEDIKT and F. ULZER (*Ztsch. f. Chem. Ind.*), stimulated by a patent by T. H. Gray, have made experiments with cotton-seed oil by passing a stream of air through it at 200 degrees, with a view of oxidizing the oil. According to the length of time the process is continued the oil becomes more or less thick, and finally a gelatinous mass. The oil remained neutral; the reaction did not concern itself with the glycerin, but the action of the oxygen exerted itself upon the glycerides of the liquid fat acids contained in the oil, changing these partly to glycerides of oxyfat acids. The authors found the "Soluble Castor Oil," put up by a firm in Hull, to be oxidized cotton oil.—*Pharmaceutical Record*, June 15, 1888.

Hydrocele Neonatorum.—WICHSELMANN, in the *Archiv für Chirurgie*, Bd. 36, S. 627, comes to the following conclusion: Hydrocele in the newborn is more common than is generally known; it is mostly right-sided; it comparatively often communicates with the abdominal cavity, and probably develops in part in utero.—*Fortschritte der Medicin*, June 1, 1888.

A New Method of Gastrostomy with the formation of a Sphincter.—After gastrostomy has been successfully performed for an impassable stricture of the œsophagus,

and nourishment can be administered through the fistula, undesirable complication are apt to arise, in that the gastric fluids escape at the side of the canulas and tubes, giving rise to excoriations of the abdominal wall. The condition shows no tendency to improve, but, on the contrary, the fistula tends to enlarge. Various means to overcome this difficulty, some operative, some mechanical, have been recommended, but none seems to have attained the desired end.

GIRARD, before the local Medico-Pharmaceutical Society of Berne, on May 1st, described an operative procedure which he had applied several weeks before in the case of a patient in the hospital. The patient, unfortunately, only consented to the operation after he had been much reduced by inanition, and only survived the operation one day; and died of debility.

A vertical incision, about six inches long, was made, dividing the upper portion of the left rectus abdominalis. The abdominal cavity was opened at the middle of this incision, a conical portion of the anterior wall of the stomach in the neighborhood of the fundus drawn out, and the base of the cone, by means of silk sutures, accurately attached to the margins of the abdominal incision—that is, the peritoneum and the posterior layer of the sheath of the rectus muscle. Then a finger's breadth of muscular tissue, on each side of the incision, was separated, preserving about four inches, and these two bridges of tissue so looped over one another, in a measure crossed, that a muscular sphincter was formed, through the opening of which the apex of the cone of gastric wall was brought out. A number of catgut sutures fixed the muscular masses and the gastric cone in position. On account of the feebleness of the patient, it became necessary at once to open the stomach with a puncture and inject liquid nourishment through a drainage tube of small calibre.

It was hoped that by this device the sphincter made in the voluntary muscular tissue could be closed voluntarily by contraction of the rectus muscle, and, at any rate, that its enlargement would not occur. Even though the bridges of muscular tissue should undergo fibrous degeneration, on account of their connection with the rest of the muscle, above and below, they would act as sphincters by its passive extension.

The post-mortem examination showed that everything had remained in its proper position; the stomach was already firmly adherent to the peritoneal opening.—*Correspondenz Blatt*, June 1, 1888,

Sulphonal.—DR. SALGO, in the *Wiener medizin. Wochenschr.*, No. 22, reports upon the use of sulphonal in a few cases, at the Insane Asylum at Budapest. The drug has not proven efficient in all cases, as in the sleepless, restless paralytics; but it was of service in some, as in a case of severe virile hysteria, in hypochondriasis, in epilepsy and others. The sleep caused by sulphonal was longer and calmer that that from paraldehyde. On account of its tastelessness, sulphonal was better taken than paraldehyde or chloral.—*Münchener medizin. Wochenschr.*, June 5, 1888.

Phenacetin.—RUMPF, of Bonn, in the *Berlin. klin. Wochenschr.* of June 4, 1888, formulates the following conclusions as to the action of phenacetin:

1. Phenacetin is a certain antipyretic, free from unpleasant effects, which may be given in doses of seven and a half grains to adults, and of three to four grains to children.

2. Phenacetin can be administered as an antineuralgic, in doses of fifteen grains:

a. In all cases of vaso-motor neuroses.

b. For the lancinating pains of tabes and the neuralgias of chronic neuritis.

c. As a palliative remedy in the most various neuralgias.

Bloodletting in Diseases of the Eye.—FIEUZAL (*Archives d' Ophthalmalogie*) states that local and general bloodletting has unjustly been almost forgotten. Particularly in diseases of the eye may bleeding be followed by excellent results. The writer has thus successfully treated cases of retino-choroiditis, simple choroiditis and sclero-choroiditis. Frequent bleeding may also be applied in cases of neuritis and cyclitic processes after operations for cataract. Local bleeding is better done with the heurteloup than with leeches, because the latter do not act rapidly enough. After the bleeding the eye must be bandaged and kept in a dark room for twenty-four hours, so that an increased supply of blood to the choroid is prevented.—*Memorabilien*, May 31, 1888.

Physiological Action of Cocaine.—This has been studied by Mosso (*Annal. de Pharm. et Chim.*) experimentally, who finds cocaine to be our best cerebro-spinal excitant. If an animal has taken a deadly dose of chloral hydrate and is in a deep sleep or comatose condition, an injection, hypodermatically, of one-eighth to one-sixth of a grain of cocaine to each 2.2 lbs. of body-weight suffices to increase the frequency of the pulse and to bring about an awakening of the animal, but the low temperature produced by the chloral remains the same. On the other hand, three-quarters of a grain of cocaine will counteract the effects of twenty-three grains of chloral hydrate. Under these circumstances Mosso believes that cocaine may be advantageously administered in cases of poisoning by chloral hydrate, opium, morphine and other narcotics which bring about a sedative action on the nerves and circulation and respiration.—*Pharmaceutical Record*, June 15, 1888.

A New Surgical Soap.—In the *Revue Médicale de la Suisse Romande*, No. 5, 1888, page 285, PROF. AUGUSTE REVERDIN, of Geneva, speaks highly of a "surgical soap" prepared after the following formula:

℞.—Oil of sweet almonds . .	72 parts.
Lye (*lessive*) of soda . . .	24 "
Lye of potash	12 "
Sulpho-carbolate of zinc . .	2 "
Essential oil of roses . .	9.5 "

(Mem.—The preparation consists in slowly adding to and carefully mixing with the almond oil the lyes and the sulpho-carbolate, part by part until an intimate and homogeneous mixture is obtained.) The latter is kept for several days at 68° F. The mass, which gradually acquires the consistence of soft paste, is then divided into any number of portions that may be desired; these are placed in suitable moulds, in which they are kept till they are completely solidified.

Prof. Reverdin has been using this antiseptic soap

since the summer of 1887, when he visited Prof. Bottini's clinic at Milan, where it is extensively employed for various purposes. The soap is said to possess wonderful cleansing, as well as antiseptic, properties, and it does not irritate the skin, however sensitive or irritable the latter may be. Moreover, as the soap contains an excessive proportion of fatty substances, it does not dry the skin. The presence of potash makes the soap by far more active comparatively than a pure sodic soap, since, as Dr. Unna has proved, potash has a more energetic solvent action on the horny layer of the cuticle than soda.

Prof. Reverdin recommends this soap not only for general use in hospital and private practice, but also for washing the hands in dissecting-rooms and everywhere where the hands come in contact with decomposing substances. Further, he urges that barbers should universally adopt this disinfecting soap for their purposes, and thus protect their customers from various infectious diseases, to which they are exposed in their shops. Prof. Reverdin has also obtained good results from this soap in various cutaneous affections. Finally, it is a very pleasant toilette soap, as he himself and many of his patients and friends have found. — *British Medical Journal*, June 30, 1888.

The Treatment of Certain Forms of Dyspnœa with Carbonic Acid Gas.—EDM. WEILL, before the Paris Académie des Sciences, in February, stated that he had successfully treated the dyspnœa of pulmonary and laryngeal phthisis, and of emphysema, by the inhalation, twice daily, for two to five minutes, of a half to a gallon of carbonic acid gas. In a recent paper, RÉNÉ CHABANNES, of Lyons, confirms the foregoing. He has used the inhalations for the dyspnœa of advanced pulmonary and laryngeal tuberculosis, in asthma, in catarrhal affections, as well as in cardiac and renal disease, and is satisfied with the results. The technique is simple: 4 drachms of bicarbonate of sodium and 3 of tartaric acid, producing a gallon or more of carbonic acid, are placed in a flask with a caoutchouc stopper perforated by an angulated glass tube, through which the gas is inhaled; or the patient may mix the materials in a glass and inhale the gas as it is developed.—*Wiener medizin. Pr.*, June 10, 1888.

Creolin—a New Antiseptic.—AMON (*München. medizin. Wochenschr.*, June 26, 1888) has had good results from the use of creolin in scrofulous and phlyctenular conjunctivitis and keratitis, in diphtheria and in pulmonary tuberculosis. He uses solutions of one-quarter to two per cent., applied locally and inhaled. The drug is said to be non-toxic, cheap and efficient as a germicide. These are the author's conclusions in reference to its use in pulmonary affections:

It is inhaled readily and without deleterious result.

The inhalations facilitate expectoration, cause a diminution in the secretion and afford the patient relief.

Fetor of the expectoration is overcome or diminished. A three per cent. creolin powder is advantageously added to the spit cups.

In some cases in which the infiltration involves only the apices or small areas of an upper lobe, good results follow (disappearance of rales and clearing up of dulness).

A New Artificial Fluid for Counting Blood Corpuscles.—At the last session of the Paris Académie des Sciences, MAYET submitted a new artificial fluid for measuring the corpuscular elements of the blood. Four cu.mm. (6½ minims) of blood are mixed with 500 cu.mm. (1⅗ fluid ounces) of a watery solution of osmic acid, and allowed to stand for three minutes. Then 500 cu.mm. (1⅗ fluid ounces) of a mixture of 45 cu.cm. (1½ fluid ounces) of pure glycerin, an equal quantity of distilled water and 17 cu.cm. (4⅔ drachms) of a watery solution of eosin are added. The red corpuscles are colored red by this solution, while the white remain uncolored. By this means the counting is notably facilitated.—*Wiener medizin. Pr.*, June 10, 1888.

Local Anæsthesia.—LIEBREICH, in experiments on rabbits and guinea-pigs, by means of injections into the pleura or instillations into the eye, found that local anæsthesia was produced by ammonium chloride, but not by the carbonate or nitrate; the iron salts are also anæsthetic, especially the sesquichloride; also the acetate of lead, but not the zinc salts. Of organic substances, hydrochinon, resorcin, antipyrin; of the oils, turpentine and eucalyptol are local anæsthetics. These medicaments paralyze the terminal nerve filaments and irritate the portions immediately adjacent. They probably exert a caustic action, cause vascular dilatation and a condition which has been called anæsthesia dolorosa. The duration of the anæsthesia is variable. In the case of the chloride of iron it was two hours and more.—*Transactions of the Seventh Congress für Innere Medicin.*

Rheumatismus Nodosus.—LINDMANN, of Manheim, in the *Deutsche medizin. Wochenschr.*, June 28, calls attention to the development of subcutaneous nodules in cases of acute rheumatism, "rheumatismus nodosus." They occur mostly in the young and in females, at about the third week of the disease, in numbers from one to more than fifty, in size from a pin's-head to an almond, their favorite seat being at the knee and elbow-joints, over the extensor tendons on the dorsum of the hand, at the malleoli and at the spinous processes of the vertebra, on the occiput and forehead, though there is no part of the body where they may not be.

The author comes to these conclusions:

1. In articular rheumatism, particularly in youth, subcutaneous nodules at times occur as a symptom.

2. Very frequently a cardiac affection, at times with chorea, exists at the same time.

3. They are sometimes the only symptom of the existing rheumatic affection; there is, at times, an exacerbation of the cardiac affection with their appearance.

4. They demand no therapeutic interference.

The Alkalinity of the Blood in Disease.—From a study of eighty-eight cases, v. JAKSCH (*Zeitschr. f. klin. Medizin.*, xiii. 3 and 4) arrives at the following conclusions:

1. Fever mostly leads to a more or less marked diminution of the alkalinity of the blood. 2. This is a constant feature in uræmia. 3. Diseases of the liver, with destruction of tissue, give rise to the same symptom. 4. Leukæmia, pernicious anæmia and chlorosis scarcely cause any alteration of the alkalinity. 5. CO poisoning also seems to diminish the alkalinity.—*Fortschritte der Medizin*, June 15, 1888.

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SATURDAY, JULY 21, 1888.

THE HYGIENIC TREATMENT OF SMALLPOX.

DURING the season just ending smallpox has, as usual, figured largely in the death-rates of most large cities. In some, especially in Europe and South America, the disease assumed formidable proportions. In this city the number was not large enough to entitle it to the name of an epidemic. Through the courtesy of the Health Officer we learn that since the first case was reported, in the middle of March, there have been slightly more than two hundred cases, with a death-rate of not quite twenty-five per cent.—an average mortality. Yet the occurrence of even this number of cases shows with what tenacity the disease hangs on, and indicates the necessity of the most vigorous means in controlling it.

Smallpox is unique among human diseases in having an almost perfect prophylaxis; but ignorance and indifference prevent its complete application. Compulsory vaccination, as practised in Germany, would probably be objected to in this country, as an infringement of personal liberty, and as vaccination itself does not protect in every case, there will probably always be enough predisposed persons to keep up the source of the disease. The possibility of extirpating smallpox must, therefore, be given up as visionary, and every effort that the means in our power will permit devoted to rendering it impotent. These means are, beside vaccination, isolation and disinfection.

Isolation, to be perfect, must be carried out in separate wards or barracks. To undertake this in rooms in large hospitals is difficult and dangerous. Under all circumstances, however, disinfection of the patient, the room, in short, of everything falling under suspicion of infection, must be practised. Ignorance of the cause of a disease is not, as has been alleged, any hindrance to disinfection. In the case of smallpox we may assume that the cause is a living organism, so that the general rules of antisepsis are applicable here as to other contagious diseases. The necessity for disinfecting the skin lesions is evident, since they must contain the contagious principles. Smallpox is probably not contagious during the earlier stages, but from the duration of the crusts, the length of certain epidemics may be understood. Thus some cases must remain sources of infection for five or six weeks.

To disinfect the face, and by this also limit the suppuration and consequent disfigurement, applications having undoubted antiseptic properties should be used. The occasional use of solutions of corrosive sublimate of the strength of one to one thousand, or of thymol one to thirty, will be found efficient and safe. For the rest of the body baths are means not only of disinfection, but also of giving the patients a great deal of relief. Warm water loosens the crusts and greatly diminishes the inflammation which accompanies the exanthem and which sometimes lasts so long. Baths should, therefore, be given daily, in water at the temperature of the body, and lasting from one-half to one hour. Various antiseptics have been proposed as adjuvants to the baths. Many of them are excluded by the danger of poisoning. In a recent number of the *Lyon Médical* the use of soft soap is advocated. This has undoubted germicidal powers, arresting the growth of anthrax bacilli, or in stronger solutions (1 to 1000) killing them. It is not, however, equally fatal to some other bacteria, such as those of putrefaction. Half a pound of soft soap, in a bath of fifty to sixty gallons of water, could be used with safety, though the physician should observe carefully its action on the skin, some persons being very sensitive to its effects.

Bed linen and other infected articles of clothing are best disinfected by exposing them to the action of vapor of water at or above the boiling point for a period of one-half to one hour, according to the size of the object. When the proper heating apparatus cannot be had, repeated boiling will probably give results as trustworthy. Furniture should be washed with strong solutions of bichloride of mercury and then with soap and water.

The greatest difficulty will often be encountered in disinfecting rooms. Heat is out of the question. Sulphur and chlorine vapors were formerly used extensively, but beside being inapplicable to many rooms, are uncertain at the best, and now given up. The plan originated by Guttmann, of spraying the rooms with bichloride solutions, has many disadvantages, and is not within the reach of all. The Berlin police authorities have recently rejected all these methods, and adopted one long known, and shown by experiments of Esmarch to be certain. This consists in rubbing down the walls and other surfaces with bread, the immediate burning of the latter, of course, following.

The indications here given seem to be at present the best, indeed the necessary, means of controlling what has ever been looked on as one of the greatest scourges of the human race, and only by carrying them out with exactness can we hope to keep it within the smallest possible limits.

SACCHARIN.

THROUGH the daily papers we learn that saccharin is to be made the subject of a parliamentary investigation in France. Increased consumption of it has so reduced the price that it has seriously interfered with the beet-sugar industry. In this country it has apparently not received so much attention as in France and Germany.

According to PAUL CHERON (*L'Union Médicale*, No. 81, 1888), the saccharin of Fahlberg is not the only substance which goes by that name. Péligot has applied it to a hydrocarbon of no present importance. Fahlberg's saccharin, derived from coal-tar, is an acid anhydro-ortho-sulphamido-benzol, capable of combining with bases. It appears as a white, crystalline powder. Its solubility varies with its purity, but as made by Fahlberg it dissolves in two hundred and eighty-six volumes of water at 50° F., and in eleven volumes at the boiling-point. It is slightly more soluble in alcohol and ether. The addition of alkaline carbonates increases its solubility. It is eliminated unaltered in the urine. The milk and the saliva do not contain it. It has no effect on nutrition or on the elimination of nitrogen. It is equal in sweetness to two hundred and eighty times its weight of sugar, and the sweet taste may be perceived in a dilution of one to seventy thousand. It is this property on which is based its employment in diabetes, and the question as to its harmlessness or the reverse is, therefore, of great importance and must be studied with care.

Stutzer, Abeles, Pollatschek and Mercier regard it as harmless, even when taken for a long period, and this opinion is shared by Adduco and Mosso. On the other hand, many see in saccharin grave disadvantages. Worms has given it in doses of one and a half grains daily in diabetes; one patient supported it well, three others were compelled to stop at the end of a fortnight. Loss of appetite and epigastric uneasiness were the chief symptoms.

Hedley has noted the rapid development of a very disagreeable, sweet taste; Kohlschutter and Elsasser have observed in their cases diminution of polyuria and of sugar, but with loss of appetite. Dujardin-Beaumetz believes that the stomach and intestinal symptoms are due to the action of saccharin on the ferments of the alimentary canal. Stutzer has shown that in artificial digestion saccharin does not hinder the action of the gastric juice, and Salkowski found albuminoid digestion unimpaired in its presence. The latter found, also, that it interferes with the saccharifying action of the saliva and pancreatic juice in an acid medium, but that when neutralized the conversion proceeds.

It is, therefore, evident that in some cases saccharin is badly supported. Probably the renal condition and impurities in the drug have something to do with the result; certain it is that it will often not be tolerated. It has been claimed that through its action on fermentative processes saccharin would prevent the formation of boils and carbuncles, but this is only a hypothetical advantage, and it is only too evident that in diabetes nothing must be done to compromise the digestive apparatus. Our present knowledge, then, goes to show that saccharin is to be given, if at all, with great caution.

Saccharin is, to a certain degree, antifermentative and antiseptic. Macnaughton Jones believes it equal to salicylic acid and thymol. In the diabetic it inhibits the torula fermentation and thus might be used in cystitis. In tuberculous cystitis it has failed, but it has been used with success in simple cystitis with ammoniacal fermentation. As a microbicide of some power, saccharin has been proposed as an intestinal antiseptic, but the necessity of employing small doses and the danger of creating digestive trouble must render such use rarely indicated.

In pharmacy, saccharin has been used to disguise the taste of very bitter medicines, such as quinia. Lutz has advised for that purpose two solutions, one

a strong alcoholic solution, the other a combination with mannite. These vehicles are to be so dosed that fifteen grains of the preparation equal one hundred and fifty of sugar or two hundred and twenty-five of simple syrup. It has also been suggested as a preservative for mixtures. For all these purposes, however, there is the same risk, in prolonged use, of exciting digestive disturbances.

THE French health office has expressed the opinion that saccharin cannot be indiscriminately taken in large quantities, particularly as a substitute for sugar, regardless of health, and the Minister of Agriculture has issued a decree forbidding its importation. At the same time the use of the drug in the preparation of confections and syrups is also forbidden.

THE next International Congress of Otology will be held at Brussels, from September 10th to 16th, Dr. C. Delstanche being president-elect. American otologists who desire to be present are invited to address the Secretary, Dr. C. Goris, 143 Rue Royale, Brussels.

AT their late annual meetings, Dr. Charles N. Lewis, of Jackson, was elected President of the Michigan State Medical Society, and Dr. P. S. Conner, of Cincinnati, President of the Ohio State Medical Society.

THE Eighth Annual Meeting of the Lehigh Valley Medical Association will be held at Paxinosa Inn, near Easton, Pa., on Wednesday, August 15th. The annual address will be delivered by Dr. Thomas J. Mays, of Philadelphia, who has chosen for his subject "The Treatment of Lung Cavities."

THE Southern Surgical and Gynecological Association will hold its first meeting at Birmingham, Alabama, on the 11th, 12th and 13th of September, 1888. Dr. W. D. Haggard, of Nashville, Tenn., is the President.

AT the meeting of the Examining Board of the U. S. Marine-Hospital Service, recently convened in Washington, twenty-one candidates presented themselves. Of these, four were rejected on account of physical disability, three withdrew, and six made the necessary percentage to pass.

IN the Quarterly Report of the Secretary of the Illinois State Board of Health, presented to the Board on June 29th, Dr. Rauch, in announcing the adoption of a three years' course by the Jefferson Medical College of Philadelphia, and the College of Physicians and Surgeons of New York, stated that "intimations have been received from other colleges that they will soon do likewise."

A REMARKABLE sequence of multiple births, reported from Henry County, Georgia, is worth remembering when the subject of the unfruitfulness of American women is brought forward for discussion. Mrs. B., aged twenty-six years, was married a little more than eight years ago. During that eight years she has had five confinements and has given birth to eleven children. At no birth were less than two children born; at the second, triplets were delivered, while at all the others there were twins. The children all survive, the youngest being four months old. The account from which the above is taken does not state whether the heroine is white or colored, but, from the context, we infer that she is white.

THE Medical Chamber of the Province of Hanover, at its session of May 8th, discussed secret proprietary medicines and means for their suppression. The fact that proprietary medication had grown to a degree dangerous to the public welfare, and that legislation restraining it was a pressing necessity was acknowledged by the majority, independently of appeals to the government meanwhile, as a proper regulation of this matter was anticipated.

DR. A. Y. P. GARNETT, of Washington, died at Rehoboth Beach, Delaware, on Wednesday night, July 11th, of heart-failure. He had been severely ill for several days, and was believed to be slowly convalescing. He left Washington for the seashore on the morning of his death, for the purpose of recruiting his failing health.

He was born in Virginia, in 1820, was graduated in medicine at the University of Pennsylvania in 1841, entered the United States Navy as Assistant Surgeon the same year, was promoted to Surgeon in 1848, and resigned in 1850, in order to accept the Professorship of Clinical Medicine in the National Medical College of Washington. At the breaking out of the war he left Washington and attached himself to the medical staff of the Confederate Army. At the close of the war he returned to Washington, and was again elected a Professor in the National Medical College. In 1887 he was elected President of the American Medical Association, and presided at the late meeting in Cincinnati.

REVIEWS.

THE PHYSICIAN'S LEISURE LIBRARY. Nos. 8 and 9. THE INFECTIOUS DISEASES. By CARL LIEBERMEISTER. Translated by E. P. HURD, M.D. George S. Davis, Publisher, 1887.

UNDER the subject of infectious diseases one naturally expects to have considered more than some of the acute exanthemata, malaria, typhoid fever and diphtheria, yet that is all we can find in the volumes forming the subject of this notice. In addition to the sin of omission, the diseases mentioned are by no means adequately described. The chapters on etiology are not up to our present knowledge, notably as regards malaria and typhoid, and the therapeutic notes, in the form of extracts from journal articles, present nothing new. What useful purpose these volumes can serve is difficult to conceive, since they do not represent the author, and fall short of the purposes of a compend, which latter both form and price seem to suggest.

THE ESSENTIALS OF MEDICAL CHEMISTRY AND URINALYSIS. By SAMUEL E. WOODY, A.M., M.D., Professor of Chemistry and Public Hygiene, and Clinical Lecturer on Diseases of Children, in the Kentucky School of Medicine. Second Edition. Revised and Enlarged, with eighty-five illustrations. Louisville: John P. Morton & Co., 1888.

The title of this little work indicates its scope, and it is remarkable how much the author has compressed into such a small space. The greater part is devoted to an outline of inorganic and organic chemistry, and might be read with profit by many who no longer hear lectures. The section on the urine, having only twenty-one pages allotted to it, has necessarily been very superficially treated, though, so far as it goes, the statements made and directions given are fairly reliable.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, June 4, 1888.

THE VICE-PRESIDENT, S. W. GROSS, M.D., IN THE CHAIR.

DR. J. HENRY C. SIMES read a paper on

THE INJECTION OF A SOLUTION OF COCAINE INTO THE URETHRA FOLLOWED BY DEATH.

(See page 70.)

DR. SIMES then reported a case of

TRAUMATIC ANEURISM OF THE VERTEBRAL ARTERY, THE RESULT OF A GUNSHOT WOUND.

Eliza S., forty-one years of age, was admitted to the surgical ward of the Episcopal Hospital on November 13, 1887. The history given was that on November 9th, four days previously, she had been accidentally shot in the neck. Her condition when admitted was as follows: On the left side of the neck, directly over the line of the carotid artery, about its middle, was seen the wound of entrance of the ball; just above this wound were two small abrasions of the skin. Over the whole anterior part of the neck, and extending two or three inches over the thorax, there was seen an ecchymosis of a greenish-yellow color. At the seat of the wound, covering an area of about two inches, was observed a swelling, not very decided. Upon palpation, this swelling pulsated markedly, and was undoubtedly expansile in character; also of an extremely vibrating nature, feeling very much as if the fingers were in contact with a galvanic battery; upon auscultation, a distinct thrill and loud bruit were quite manifest. There were swelling, pain, especially on movement, and some slight paralysis of the left arm. The general condition of the patient was fairly good.

On November 15th, two days after admission to the hospital, at a consultation of the surgical staff, it was decided to attempt to ligate the common carotid artery, believing it, or one of its branches, was injured. During the interval of two days, the swelling had increased in size, and the thrill and bruit had become much more distinct; the ecchymosis had also extended further over the thorax. Ether was administered, and a ligature was passed around the common carotid artery, just above the clavicle. Pressure upon this artery, while lessening the pulsation of the tumor, did not, however, perfectly stop it. Before tying the ligature, which had been passed around the carotid artery, the operator continued his incision upward over the swelling, and threw a ligature around the artery above it. The ligature below was now tied, and instantly a most terrific flow of blood gushed out of the wound. The upper ligature was immediately tied, but had no control over the hemorrhages; artery forceps and fingers were employed to seize any and all bleeding points, but the blood continued to flow; finally, Dr. Nancrede thrust his finger deep into the wound, against the vertebræ, when the hemorrhage at once stopped.

It was now evident that the vertebral artery had given away; indeed, the fractured vertebra was felt at the point whence the bleeding came. The possibility of ligating the ruptured artery could not, under the circumstances, be entertained; it was not practicable, and the only procedure which suggested itself as possible, was to plug the artery in the foramen through which it passes. A piece of cork was cut of suitable size, and an attempt was made to insert it into the long canal; this, however, was not successful. A long strip of lint, one inch wide, was now, by means of the fingers and forceps, forced into the canal, and the hemorrhage ceased; the wound was packed with lint, and over it a shot-bag was placed, to act as a compress.

The patient was considerably shocked, but under suitable treatment soon reacted. It was thought best not to remove her from the operating-table; by the use of sand-bags the head was made immovable, and she was cautioned as to the danger of bleeding by making any effort on her part to move.

The result was in great part due to the woman herself; she proved to be a most willing and obedient patient. Morphia was ordered to allay restlessness, with milk and beef-essence for food. On November 16th, the next day, she was doing well, temperature normal, pulse good, no difficulty in taking her nourishment, and she had slept fairly under small doses of morphia. On the next day she was removed from the operating-table to a bed without difficulty. *18th.* No change, except elevation of temperature, 101°, undoubtedly occasioned by beginning

of suppuration in the wound. *19th.* The wound freely suppurating; removed some of the packing, washed with bichloride of mercury solution, and dusted with iodoform; temperature to-day 102½°. *20th.* Removed more of the lint packing, and employed same dressing; temperature 101½°. *21st.* The wound looks very well and granulating; removed more of the lint; temperature 102°. *22d.* The last of the lint was removed, and the wound was seen to be contracting very fast. From this date until November 29th, there did not arise any unfavorable symptom, the patient continued to improve in general health, and the wound in the neck all healed, with the exception of skinning over at one angle. At this time there were first noticed some cerebral symptoms, which very rapidly increased; there were ptosis of the left eyelid, and hemiplegia of left side; she soon became unconscious, and died on Dec. 2d.

The *post-mortem* showed softening of the entire right side of the brain. An examination of the neck disclosed the left carotid artery from its origin at the aorta to be obliterated by a thrombus. The vertebral artery, where it passes through the foramen in the fifth vertebra, was destroyed, and about half an inch of its continuity was missing; the remaining portion was filled with a thrombus. There was a comminuted fracture of the transverse process of the fifth vertebra, and the pistol-ball was found lying against the body of this bone. The spinal canal was not opened, nor was there any apparent lesion of the cord or its membranes.

DR. CHARLES B. NANCREDE said that the thrill which was present in this case presented certain peculiarities. Before the operation was commenced, he expressed the opinion, based on the sound, that it was either an arteriovenous aneurism in which the internal jugular was involved, or else more than one vessel was involved. After placing the ligature around the common carotid, and while trying to pass the aneurism needle around the distal part of the vessel, it entered something from which arterial blood oozed. After failing to check it with forceps the lower ligature was tightened. Pressure on the vessel below had before caused a marked diminution of the pulsation in the swelling. The moment that the ligature was tightened, there was a most appalling gush of blood. The pressure forceps caught a mass of tissue in the upper part of the wound from which blood was flowing. The blood, however, continued to gush out. He then placed the fingers of both hands into the wound, tore it open, and gripped the tissues outward, without any effect. He then made pressure inward. This also failing, he pressed backward, and his thumb slipped into the opening in the vertebra. He believed that several vessels were involved; the distal end of the carotid, the jugular vein and the vertebral artery were bleeding at the same time. He did not think that the vertebral alone could have poured out this large stream of blood.

One point of interest was the effect of the application of Esmarch bandages to the limbs, with elevation, in the almost fatal syncope which followed the bleeding. He could not help thinking that the repeated hypodermatic injections of a saline solution were of decided benefit.

DR. S. W. GROSS said that unquestionably the first case recorded of antiseptic plugging of a wound to arrest arterial hemorrhage, was that of a stab-wound of the neck, in which the vertebral artery was involved. The wound was plugged with iodoform gauze, the bleeding checked and the patient recovered. The operation was performed by a German surgeon.

DR. FERDINAND H. GROSS reported a case of

GUTTA ROSACEA

(or what, in the classification of some writers on dermatology, is termed acne rosacea), and showed a number of photographs representing the patient as he appeared before and after a successful plastic operation had been performed for the relief of the disfigurement of the nose. The unsightly protuberance arose and continued to increase in size during the third stage of the disease, when, with greater expressiveness, the malady is called Rosacea Hypertrophica.

The patient, a carpenter by occupation, was in his fifty-seventh year, and had been affected with rosacea for at least twelve years; while the third stage had endured for about one-fourth of that time. He was never afflicted with specific disease or any other malady of importance, except dyspepsia. He was not a free drinker; although not totally abstemious in the use of liquors, his complaint could not be ascribed to intemperance. When Dr. Gross was first consulted in the case, numerous medicaments had already been administered internally, and local applications had been ineffectually tried. The patient had become sullen and taciturn, refusing to mingle with his usual associates, or to continue his ordinary vocation. His digestive apparatus was out of order, and the dyspeptic condition, already alluded to, was doubtless a factor in the disease, and needed correction. The protuberances seen upon the tip and ala of the nose, obstructed the left nostril, and rendered breathing labored and difficult. The peculiar unevenness and craggy appearance of the affected skin were well marked.

In addition to the earlier changes of the disease, such as passive congestion and dilated bloodvessels, rosacea in the later form here presented consists essentially of hypertrophy of the connective tissue, when the nose may attain enormous proportions; but this condition is rare, and is looked upon by some writers as a dermatological curiosity.

Attention was directed to the disturbed digestive functions before the knife was used to reduce the enlarged and lobulated nose to normal proportions. This was done by first carrying an incision along the lower free border of both alæ (the edge of the knife being directed upward), and the line of the cut passing through the lobe just above the anterior limit of the columna, and through the lumpy masses at that point and on the left ala. To this long incision was joined another, running vertically on the dorsum of the nose from bridge to tip. Two triangular flaps of the thickened integument of the wings of the organ were next dissected up, and the superabundant cellular tissue and lumpy projections were trimmed and scraped away. While doing this, any injury to the lower lateral cartilages was avoided. Hemorrhage was rather copious, as might be expected from a part so congested, but the free bleeding had its beneficial effect upon the final favorable result.

The disease never becomes malignant in its nature, though it may sometimes return. It is now nine months since the operation was performed, and there are no evidences of further trouble. The result of the operation was entirely satisfactory. The nose now presents a normal and shapely appearance, and the photograph recently taken shows no scars.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, June 22, 1888.

FIRST VICE-PRESIDENT, WILLIAM GARDNER, M.D., IN THE CHAIR.

DR. LAFLEUR presented the specimens obtained from a case of

MULTIPLE CAPILLARY HEMORRHAGE AND FATTY DEGENERATION OF THE PANCREAS.

The patient was a man, aged fifty, who had been under the care of Dr. Ross. For several years he had suffered from obscure dyspeptic symptoms. Twenty-four hours before death he was seized with a severe pain in the epigastrium and vomiting; he became collapsed, and rapidly sank. At the autopsy the pancreas was found to be uniformly enlarged to more than twice its natural size, of a dark-reddish color, externally; on section, firm and of an almost uniform, dark-red hue, mottled here and there by grayish patches which resembled the normal parenchyma of the organ. A thin section showed that the general, dark color was due to numerous close-set capillary hemorrhages, separated from one another by a grayish, translucent material. Microscopic examination confirmed the nature of the changes; the hemorrhagic portions having a brownish-red color and presenting a peculiar fissured appearance (due probably to freezing the specimen in making the section). In addition there was universal fatty degeneration of the tubules and acini. The cellular tissue around the pancreas was blood-stained. There was no peritonitis and no evidence of disease in any of the organs.

DR. WILLIAM GARDNER reported a case of

EXTIRPATION OF THE UTERUS BY THE VAGINAL METHOD,

for malignant disease. The case presented several features of unusual interest. The patient, who was unmarried and aged forty-three, had suffered for seven years from pelvic pain, uterine hemorrhage and other discharges; at times fetid, fleshy masses were expelled from the uterus. Anæmia and cachexia were marked. On examination under ether, the uterus was found uniformly enlarged—five to six inches in depth—the cavity much enlarged, and the lining membrane nodular and roughened; extirpation was recommended, and, after due consideration, the patient consented.

Dr. Gardner expected unusual difficulty in the operation because of the large uterus and narrow, rigid vagina and perineum. After ligature of the bases of the broad ligaments and separation of the uterus in front and behind, the uterus was reduced in size by excision of portions. In this way the organ was removed *per vaginam* without much difficulty. Dr. Gardner said he had contemplated the possible necessity or feasibility of a combined vaginal and abdominal operation; detaching the uterus from above after abdominal section, and completing the separation from below, finally lifting the uterus from the pelvis through the abdominal incision. This, however, proved to be unnecessary. Although the operation was a very severe one in the weak state of the patient, she was in a remarkably good condition when put to bed, but she died of peritonitis in forty-eight hours.

Dr. Gardner said that this was the first death he had had in this operation. He had removed the uterus six times by the vaginal method. The present fatal case was by a great deal the most difficult of all. The specimen showed great thickening of the walls of the uterus. Microscopical examination by Dr. LaFleur showed the disease to be a malignant adenoma. The thickened walls were composed of apparently healthy, smooth muscle-fibres, an hypertrophy, probably the result of long continued irritant influence of the disease on the endometrium.

DR. TRENHOLME congratulated Dr. Gardner on his great success in extirpation of the uterus by the vaginal method; a mortality of one in six was a good record. He had himself extirpated the uterus ten times with recovery in only four cases. In some of the cases in which he had operated the condition was desperate and there was but slight hope of recovery from the first. He was very doubtful of the advisability of extirpation of the uterus for malignant disease, and he had almost given up performing the operation. In the specimen presented by Dr. Gardner it appeared to him that the case was non-malignant, the uterus was not fixed and the growth did not infiltrate. In such a case he thought a thorough curetting of the uterus and the application of electricity by Apostoli's method would have been more suitable than excision.

Dr. Trenholme preferred the abdominal operation in removing the uterus; he made use of the V-shaped incision according to the method introduced by himself. This method of making a flap of the cervix was suitable to cases of myomata and was better than ligature by wire, etc. The two flaps formed by the V-shaped incision should be sewed firmly together with silk or shoemaker's thread, and in this way the cavity was completely closed and the danger of hemorrhage prevented. Should drainage be necessary, a tube could be passed through the centre of the stump into the vagina. He thought this operation would have been suitable in Dr. Gardner's case, because the cervix was not involved in the disease.

DR. ARMSTRONG said he would have liked to heard more about the combined method. He had no doubt that fetid discharges had escaped into the peritoneal cavity when the uterus was split up. He thought contamination by discharges from the interior of the uterus could have been avoided by the abdominal operation.

DR. GARDNER, in reply, stated he believed the case to be one of malignant disease; clinically it certainly was. His experience with removal of the uterus by abdominal section had not been as favorable as by the vaginal method. In reply to Dr. Armstrong, he said it was quite probable that the peritonitis resulted from the escape, during the operation, of fetid discharges from the uterus.

DR. SHEPHERD read a paper on a case of

EXCISION OF THE TONGUE, FOLLOWED BY DEATH FROM ACUTE MILIARY TUBERCULOSIS.

The patient, a strong, healthy Irishman, aged sixty-four, was admitted into hospital May 19, 1888, suffering from an ulcer on the left side of the tongue.

Patient had never been ill in his life, never had any cough and had been a very moderate smoker. In September, 1887, first noticed a small hard nodule on the left side of the tongue about one inch from the tip. This troubled him and was cauterized by his medical attendant. An ulcer soon formed which increased slowly. On entering hospital his condition was as follows: On the left side

of the tongue, not far from the tip, was an irregular fissured ulcer with undermined, ragged edges and a sloughy base. The whole ulcer was surrounded by a mass of induration, the size of an almond. The ulcer was painful and the patient was unable to masticate his food; not much salivation and no fetor. Some small, hard glands felt in the submaxillary region. Patient's general condition was good and all his organs apparently healthy. Temperature normal. A portion of the ulcer was snipped off and examined, but nothing but epithelial elements found.

From the age of the patient, the history of the case and the appearance of the ulcer with the surrounding induration and involvement of the submaxillary glands, the case was thought to be one of epithelioma, and immediate operation was advised. The operation was performed on May 23d by the method usually employed by Dr. Shepherd in such cases, viz., preliminary ligature of the linguals with removal of the involved glands and excision of the tongue by scissors. The patient recovered well from the operation, and was fed by the rectum for three days. On the fourth day patient sat up and fed himself, but that evening his temperature rose to 101°. Next day he had a pain in his right side and a well-marked friction sound was heard. The wound was perfectly healthy and sweet and granulating well. On the sixth day his temperature rose to 103°, respiration 41 and patient became very weak, and died on the seventh day.

DR. LA FLEUR, who performed the autopsy, reported that the wounds in neck and mouth were healthy, without fetor and healing kindly. In the thorax was found a complete adhesive pleuritis of the right side, and also to a lesser extent on the left side. The surface of both lungs was crammed with gray miliary tubercles the size of millet seeds. Left lung on section also contained numerous miliary tubercles. Bronchi normal. Liver and kidney contained a few miliary tubercles, and the right testicle was enlarged and caseous. A microscopic examination of the ulcer on the tongue disclosed numerous tubercles in the floor and around abundant small-celled infiltration. Tubercles found among the muscle fibres.

DR. SHEPHERD said there was now no doubt in his mind that the case was one of tuberculous ulcer of the tongue with a latent condition of general tuberculosis, which was lighted up into activity by the operation; he also discussed the difficulties of diagnosticating such cases from epithelioma, especially when the patient was between sixty and seventy years of age. The case was unique in his opinion. Cases of miliary tuberculosis are reported following several weeks after operation, but such a rapid course was very unusual. The immediate cause of death was no doubt pleuritis in a patient already depressed by a severe operation. At the post-mortem there were no evidences of septic infection.

DR. GEORGE ROSS said that the surgical points in this case, which had been considered by the reader of the paper, were most important, but the medical questions which were suggested were of far greater interest. He had no doubt that in certain cases the diagnosis between a tuberculous and cancerous ulcer was impossible. The case was interesting, firstly, from the fact of an acute miliary tuberculosis occurring at such an advanced age; such cases were by no means common; still he had seen not a few cases of acute tubercular meningitis in persons over fifty; secondly, the occurrence of acute miliary tuberculosis after operation was new to him. There was no doubt that this affection had come on rapidly, yet it was not in his experience to see acute tuberculosis running such a rapid course. He was inclined to think it was a case of coincidence, and that the affection would have occurred without operation. The focus of infection was no doubt in the tongue or in the testicle. He did not think the tubercle was latent and had been lighted up into activity by the operation, as suggested by Dr. Shepherd; the tubercles were all of the same age and were recent. The patient's temperature, which had been carefully observed for several days before operation, was normal, and an examination of the chest had revealed nothing. The acute pleurisy, no doubt, was the immediate cause of death.

DR. BELL said he did not believe the operation had lighted up into activity an already existing miliary tuberculosis. How often do we see tuberculous testicles and glands removed and yet no such conditions result. The man may have been in a condition ripe for the development of tuberculosis, and the shock of the operation, or, more likely, the prolonged etherization necessary in such a radical operation as that performed by Dr. Shepherd, may have started the process. In his experience, however, he had never seen acute tuberculosis run such a rapid course. Dr. Bell mentioned a case of acute tuberculosis which had supervened three weeks after an excision of the hip for strumous disease. In this case, however, there was old disease of the lung. In speaking of the microscopic examination previous to operation he said the examination of a superficial portion of an ulcer revealed nothing; a portion of the base of the ulcer should have been excised. He thought tuberculous ulceration of various parts, such as the rectum, bladder, skin, etc., was often overlooked by medical men.

DR. LA FLEUR suggested that the rapidity of the disease might be accounted for by the mode of infection, which was probably through the bloodvessels and not the lymphatics. When infection takes place through the blood acute tuberculosis may run a very rapid course.

DR. BULLER reported a case of

ARTERIO-VENOUS ANEURISM OF THE ORBIT CURED BY LIGATURE OF THE COMMON CAROTID ARTERY.

The patient was a healthy man, aged twenty-eight, who three months before fell from a bridge a considerable distance, striking the right side of his head and fracturing his jaw. The injury was followed by great swelling and pain, and when the swelling subsided the patient noticed that he had double vision. The pain and swelling gradually subsided until two weeks ago, when he noticed that the right eyeball appeared larger than the left and the pain again increased in severity, being so intense as to prevent him from sleeping—pain was throbbing in character, and was increased by pressure. When first seen the eyeball was much protruded, the conjunctiva œdematous and also both eyelids, pupils active, retina œdematous, but no swelling of the optic nerve. Vision of right eye $\frac{20}{C}$. On pressing the eyeball strong pulsation felt. On auscultation a loud rasping murmur heard, synchronous with the pulse. Pressure on the carotid arrests bruit and pulsation, and diminishes size of the swelling. Arterio-venous aneurism was diagnosticated

and ligature of the right common carotid advised. Dr. Shepherd ligated the right common carotid, dividing it between two ligatures. The patient rapidly improved, the proptosis quickly diminished and pain ceased. At the end of ten days the patient had almost normal vision in the right eye and also normal movements. The œdema disappeared and the eye resumed its natural position. The first dressing took place on the tenth day, when the wound was found completely healed by first intention; the bone drain had entirely disappeared. Temperature never arose above the normal.

Dr. Buller promised at some future time to give a more detailed account of the case, and a review of the literature of arterio-venous aneurism of the orbit.

Dr. HINGSTON reported a case of

COMPOUND DISLOCATION OF THE ASTRAGALUS, IN WHICH THE PATIENT REMOVED THE DISLOCATED BONE.

The patient was a man about twenty-five years of age, who fell with his foot twisted under him; on endeavoring to rise he noticed a bone protruding from the region of the ankle-joint. This was loose and he removed it himself with a penknife and brought it to Dr. Hingston. The bone was the astragalus. The patient made an excellent recovery.

NEWS ITEMS.

The Method of Disinfection practised at the Quarantine Station below New Orleans.—No scientific report published by the government this year has been more important than that just made by Dr. J. J. Kinyown, assistant surgeon in the Marine Hospital Service (*Weekly Abstract*, June 29), upon the germicidal powers of the different methods of disinfection practised under the direction of the Louisiana Board of Health at the quarantine station below New Orleans. The report is important, not only because it shows the degree of protection against the importation of infectious diseases through the important port of New Orleans, but also, since the methods of disinfection practised at other quarantine stations are similar to those in use there, the experiments show approximately the efficacy of each mode of disinfection, and suggest changes that should be made in their use.

The three methods of disinfection tested were: the use of bichloride of mercury solution, the application of dry and moist heat and fumigation with sulphur dioxide.

Dr. Kinyown finds the first of these methods defective, because of the difficulty of getting the disinfecting agent into cracks and corners, rubber goods, the under sides of decks, and into lockers, etc. He discovered in all these localities and articles that the microörganisms existing before the disinfection had not been destroyed, and he found them as plentiful on the floor of the forecastle of one ship, that was exceptionally filthy, after it had been drenched with bichloride of mercury for an hour, as before. Dr. Kinyown recommends that, in order to make this mode of disinfection more effectual, the bichloride of mercury be applied with a spray produced by connection with a steam-boiler, and that it be applied after fumigation by sulphur.

The results from the application of dry and moist heat were the most satisfactory of all. Cultivations of various disease-germs exposed to a dry heat of 176° F., and afterward to steam at a temperature of 212° F., were, with few exceptions, destroyed. Dr. Kinyown thinks that, in order to secure absolute protection, the heat should be made greater and the time of exposure increased.

In eleven experiments seventy-four disease-germs were placed in vessels among articles to be disinfected by the use of sulphur dioxide, but only sixteen of the whole were destroyed, or less than twenty-two per cent. Dr. Kinyown has very little to say about this method of alleged disinfection, except to recommend that the sulphurous fumes be applied in large quantities, and be confined in the compartments to be disinfected a longer time. But he reports his experiments in full, and lets them speak for themselves.

The net result of these tests is to show that some disease-germs escape even when the most effectual modes of disinfection practised at quarantine below New Orleans are resorted to, and that less than one-fourth of them are killed when the least effective method is used. We assume that the quarantine and city health officers everywhere will profit by the suggestions of this report, and that the public will be better protected in the future than in the past.—*Science*, July 13, 1888.

A School for Male Nurses.—The New Training School for Male Nurses was formally transferred on July 5th to the City of New York, by Mr. D. O. Mills, through whose liberality the building has been erected on the grounds of Bellevue Hospital. The building is of Carlisle stone and red brick, with terra-cotta trimmings, built in a simple form of the Romanesque order of architecture, five stories and basement in height, in the form of an L, with a frontage of 75 feet on Twenty-sixth street, and 80 feet on the East River. On the main floor are the administration rooms and offices, the dining-room and kitchen, and the matron's and linen rooms. The next four floors are divided into 50 sleeping apartments and closets and bath and toilet rooms, except the two upper floors of the wing overlooking the river. These are thrown into one large hall, about 30 by 80 feet in extent and over 18 feet high, in which will be contained the museum connected with the hospital. The building was furnished completely from top to bottom with white oak chamber and antique oak office, reception and dining-room furniture, linen, bedding, tableware, silver and range furniture, and, as given yesterday to the city, cost the donor nearly $100,000. In presenting the building, Mr. Mills said: "In the great development of means for caring for the helpless sick, which marks the present century, no want has been more felt than that for trained nurses. Medical science has made immense advances, but while the schools furnished physicians, and the humane spirit of the age built and endowed hospitals, it was still hard to supply the skilled care which often does more for the sufferer than medicine. The Training School for Female Nurses was a great gain. Personal observation of the good it has done led me to think that an equal service might be rendered by an institution for the training of male nurses. The humane work of the physicians in charge of Bellevue and other city hospitals could thus be efficiently supplemented, and the sufferings of the poor under their care alleviated, while the community would gladly employ all the male nurses the hospital could spare, and so enable the students thus trained to make the vocation of nursing their life-work. . . . .

I have, therefore, taken great pleasure in erecting for this purpose a building on the grounds of Bellevue Hospital."

The Prevention of Puerperal Fever. — DR. WILLIAM GOODELL writes to the *Medical Standard* (July, 1888), that he succeeded at the Preston Retreat in stamping out puerperal fever from its wards by the following procedure: Previous to the birth of a child, the vagina was cleansed by a quart of (1 to 2000) mercury bichloride solution. After complete delivery the vagina was again cleansed in the same way. A suppository containing twenty grains of iodoform was slipped into the vagina. A pad of sublimated cotton, kept in place by a T-bandage, covered the vulva. His hands and those of his assistant were carefully cleansed by soap, warm water and the nail-brush and dipped into a (1 to 1000) sublimate solution before each examination. After the introduction of this plan into the Retreat, not only did puerperal fever cease to appear, but ophthalmia neonatorum vanished.

Every year, he says, he is called in consultation to see about a dozen women die from puerperal fever whose lives, he is sure, might have been saved had the foregoing treatment been adopted.

Hydrophobia in Paris.—In the first five months of 1888 there were no fewer than 280 applicants at M. Pasteur's laboratory from the Department of the Seine alone, all of whom had been bitten by dogs either known to be rabid or suspected of being so. This number is almost equal to the corresponding total for the whole year 1887, which amounted to 306. The Prefect of Police has, therefore, issued an order that for six weeks no dog shall be allowed to go about the streets of Paris, unless led by a string. The owner of two dogs, which had been in contact with a rabid cur, was recently sent to prison for six days and fined 200 francs ($40) for refusing to have them destroyed. —*British Medical Journal*, June 30, 1888.

The Physician as a Public Man.—The passing away of a man distinguished as physician and citizen is full of suggestion to those who are left behind to uphold the honor of the profession he adorned. The complaint is on many a lip that men are abstaining from their share of the responsibility in public duties. There is not always a clear sense of discrimination between political and public life. The pursuit of politics, as a profession, is not compatible with the diligent performance of other duty, and participation in practical politics is not possible for all men. Neither is public life bounded by the presence of large assemblies or prominent connection with great public enterprises. This country has stretched its civilization and built up its massive structure out of the thought and labor of the common people. The common people means all the people. They who have conceived and directed are one with those who have wrought. With the increase of population is coming, faster and faster, the separating class of those who teach and those who are to be led. The educated man must be the leader wherever he is; the illiterate are always children and seek a leader. In this country the opportunities for public duty are everywhere, from centre to outskirts, and always have there been men from every station to take their part in shaping the civilization. Apart from the pressure of life's necessities, men are everywhere adding to their occupation by confessing their responsibility in the promotion of schemes that look to the comfort and betterment of life for the less favored. There is, through the length and breath of the land, an enormous activity of vigorous life, alert and earnest, though unobtrusive, swaying sentiment and adding to the common fund of improved measures of public weal.

It would be difficult, in this common effort, to compare rightly one man's influence with another's, and it would be unwise to contrast the influence of various institutions, systems or measures. But the persuasive power of the medical profession to influence opinion and mould sentiment is not open to question. It does, however, deserve to be understood. The medical man, educated, sincere and high-minded, who, for two score years working within a limited circle, concentrating the best that is in him on a definite purpose, coming into exceptional personal contact with home intimacies, with an opportunity for impressing his own personality, open to no other calling in life, is a public man, in public life, doing a public service, that cannot be matched for influence on public opinion by any other man in any other vocation, and cannot be overrated. Let any medical man feel that, while this is his possibility, he is one of a vast profession, with common opportunity and common responsibility, and the dignity of his calling in life rises to a plane than which none is higher in the world's activities. The physician is forever in public life, never out of the public eye, and can never be free from the obligations that attach to his opportunities for influence. To have spent such a life well, to have made the years fruitful, not alone in soothing the struggle of the physical life with adverse fortune, but to have taught quietly the lessons of a pure life and an unselfish labor for others, and to have lifted men out of barren thought to exalted aspirations, is a glory for any man. And this crown is within the grasp of any physician. The retrospect of such a life, after its activities are over, cannot fail to be consoling. The profession of medicine may well be proud to hold such lives in fragrant memory.—*Brooklyn Medical Journal*, June, 1888.

Medical Education in Spain.—On May 27th the first stone of the new buildings of the Faculty of Medicine was laid at Barcelona. In addition to liberal accommodation for teaching and original scientific work, they will include a hospital expressly designed for clinical instruction. The site has been given by the town, and the Spanish Government has made a grant of one million dollars for building purposes.—*British Medical Journal*, June 30, 1888.

Dr. Carl Kilcher, assistant at the pathologo-anatomical department of the University at Prague, died recently of blood-poisoning, a result of the inoculation of blood from a typhus fever patient for scientific investigation.

Dr. F. W. Hagen, court physician, and recently professor of psychiatry and director of the mid-Franconian District Insane Asylum, died at Erlangen, at the age of seventy-four.

The University of Utrecht has lost not only Professor Donders, who has just passed his seventieth birthday, but also Professor Koster, who, for more than twenty-five

years, has ably occupied the chair of anatomy. The latter has resigned on account of failing health, and his resignation has been accepted. Dr. Th. W. Engelmann, formerly professor of histology and experimental toxicology, has been elected to the chair of physiology; Dr. C. A. Pekelharing, formerly professor of general pathology and pathological anatomy, to the chair of histology and experimental toxicology; Dr. H. H. Sprouck, formerly lecturer on anatomy, to the chair of general pathology and pathological anatomy; and Dr. E. Rosenberg, formerly professor in ordinary at the University of Dorpat, to the chair of anatomy.

A New Alkaloid in Tea.—At the meeting of the Berlin Physiological Society on June 8th, Professor Kossel reported on a new base, discovered by him, in extract of tea. Caffeine is the only definite chemical base hitherto isolated from tea, and to it are ascribed many of the effects of tea. Professor Kossel has found another base in very small quantity, having the composition $C_7H_8N_4O_2$, upon which he has bestowed the name "theophyllin." It is isomeric with the base obtained from cacao (theobromine), and with paraxanthin obtained from urine by Salomon, but differs from these substances by its reactions. The introduction of a methyl group into theophyllin converted it into caffeine, and as the latter is proved by E. Fischer to be a trimethylxanthin, the former is evidently a dimethylxanthin. Investigations into its physiological effects will be made.—*British Medical Journal*, June 30, 1888.

Narceine. — Laborde and Duquesnel, at a recent meeting of the French Academy of Medicine, reported experiments with this substance, a constituent of opium, first studied by Bernard. A combination known as meco-narceine is most soluble. Narceine is said to be without the unpleasant effects of morphine.—*Revue Gén. de Clin. et de Thér.*, May 10, 1888.

A Medico-legal Case. — The following case of suicide which recently occurred in Jamaica presents features of considerable interest and no little importance. A colored man, after murdering his sweetheart, entered his house, and cut his throat with a razor. Some of the neighbors who had witnessed both deeds rushed into the house, but were unable to find him. After a search, his dead body was found under the house, which was a small one, built on supports, raising it about two feet from the ground. After cutting his throat, the man must have walked or run to the back entrance, a distance of sixteen feet, and then have crept through a hole in the partition, and have crawled on all fours to the spot where his body was found, exactly beneath the room where he cut his throat, and, therefore, a further distance of sixteen feet. The throat was cut from ear to ear by a clean sweep, both carotids and jugulars being severed, as well as the trachea and œsophagus, the wound reaching back to the anterior portions of the bodies of the cervical vertebræ. A blood-stained razor, which was deeply notched, was found in the room, and marks of blood were traced from the room to the back entrance by which the man must have gone out.

Dr. Cargill, who examined the body soon after death, and to whom we are indebted for a report of the case, was asked by the coroner if it was possible for a man to have traversed the thirty-two feet after inflicting such wounds on himself; to which he replied by declining to controvert, as a mere matter of medical opinion, facts that had been sworn to by reliable eye-witnesses. Remarkable instances of the retention of voluntary power after wounds of the carotid artery have been occasionally recorded, but we know of no occasion on which the vessels on both sides of the neck were divided, where so much power was retained by the subject of the injuries as in the present instance. The case should serve as a perpetual warning to medical men not to be too dogmatic as to what is, and what is not, possible even in the presence of the most rapidly fatal wound.—*British Medical Journal*, June 30, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 17 TO JULY 23, 1888.

MCPARLIN, THOMAS, *Surgeon* (U. S. Army)—Leave of absence extended one month.—Par. 10, *S. O. 160, Department of the Platte.*

WOLVERTON, WILLIAM D., *Surgeon* (U. S. Army).—Leave of absence extended twenty days.—*S. O. 142, Headquarters, Division of the Atlantic.*

DEWITT, CALVIN, *Major and Surgeon* (U. S. Army).—Leave of absence extended one month.—*S. O. 159, A. G. O.*, July 11, 1888.

BANISTER, WILLIAM B., *Lieutenant and Assistant Surgeon.*—Leave of absence extended twenty-seven days.—*S. O. 157, A. G. O.*, July 9, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JULY 14, 1888.

MARTIN, WILLIAM, *Assistant Surgeon.*—Ordered to Marine Rendezvous, San Francisco, Cal., and to attend officers of the Navy and Marine Corps not otherwise provided with medical aid.

AUZAL, E. W., *Assistant Surgeon.*—Detached from duty at the Marine Rendezvous, San Francisco, Cal, and special duty there, and ordered to the Naval Academy.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JULY 16, 1888.

BAILHACHE, P. H., *Surgeon.*—To proceed to Delaware Breakwater Quarantine Station as inspector, July 6, 1888.

FESSENDEN, C. S. D., *Surgeon.*—Leave of absence extended thirty days on account of sickness, July 14, 1888.

PURVIANCE, GEORGE, *Surgeon.*—To proceed to Chattanooga, Tenn., as inspector, July 6, 1888.

SAWTELLE, H. W., *Surgeon.*—Granted leave of absence for twenty-three days, July 9, 1888.

MCINTOSH, W. P., *Assistant Surgeon.*—To proceed to Galveston, Texas, for temporary duty, July 14, 1888.

PETTUS, W. J., *Assistant Surgeon.*—Granted leave of absence for thirty days, July 16, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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